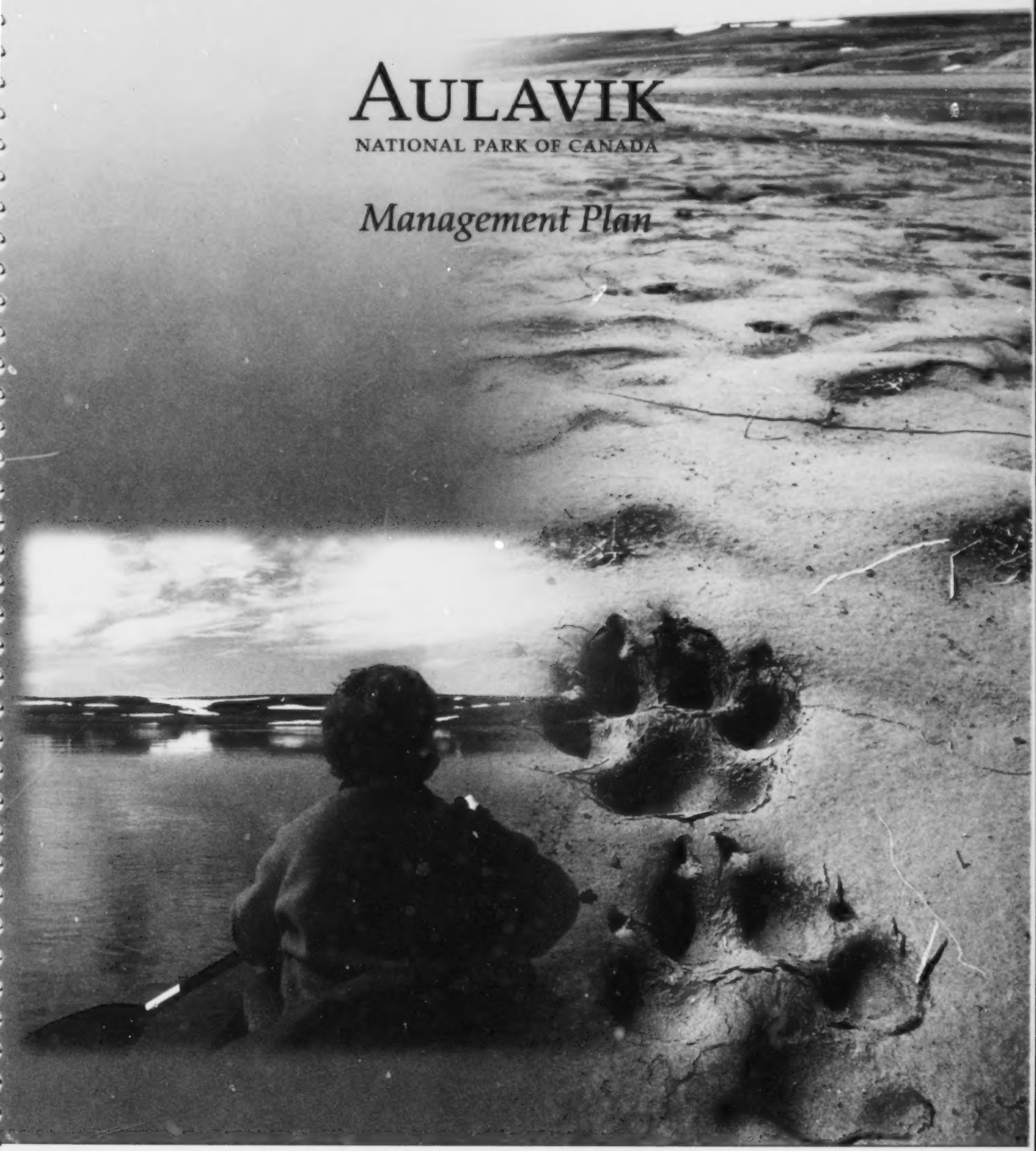
AULAVIK

NATIONAL PARK OF CANADA

Management Plan



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AULAVIK
NATIONAL PARK OF CANADA

Management Plan

September, 2002

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FOREWORD

Aulavik is a breathtaking blessing. This wondrous place on Banks Island contains the world's most northerly navigable river. It encompasses lush valleys, enormous sheer cliffs, arid desert, steep canyons, vast wilderness and gentle hills.

Aulavik National Park is home to an astonishing variety of flowering plants and more than 40 species of birds visit Aulavik seasonally. Tens of thousands of muskox live in the park. Along the park's dramatic northern coast is a vast array of marine mammals from ringed seals to beluga whales and polar bears.

The human history of Aulavik resonates with the same drama as its natural beauty. Human life on Canada's most westerly Arctic Island dates back more than three millennia. The Ugyuligmiut people harvested the land. British sailors aboard *HMS Investigator* became trapped in the ice at Mercy Bay for more than two years. Aulavik contains innumerable archaeological features, including the Head Hill site with its dozens of tent rings and food caches.

Today, the only community on Banks Island is Sachs Harbour, home to some 140 Inuvialuit. Canadians owe deep gratitude to the Inuvialuit for their vital role in bringing Aulavik National Park into being.

The care and management of Aulavik are now guided by this new management plan. Stewardship of the park will be an ongoing and cooperative partnership between Parks Canada and the Inuvialuit. It is through this partnership that the ecological vision set out in the management plan will be translated into specific ecological goals and indicators, action plans for dealing with threats to ecological integrity and a park ecological monitoring program.

Canada's National Parks connect us to our roots, to our future and to each other. Aulavik is a precious gift which Canada holds in trust for the world and for future generations. It is of exceptional importance to protect the health and the history of Aulavik, one of the most remote places in our country and one of the most awe-inspiring.

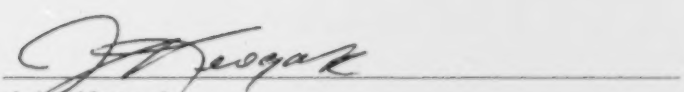
In keeping with that spirit, I approve the Aulavik National Park of Canada Management Plan.

Sheila Copps
Minister of Canadian Heritage

RECOMMENDATION STATEMENT

AULAVIK NATIONAL PARK OF CANADA
MANAGEMENT PLAN

Recommended for approval by:



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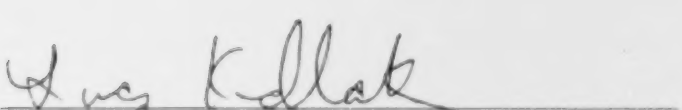

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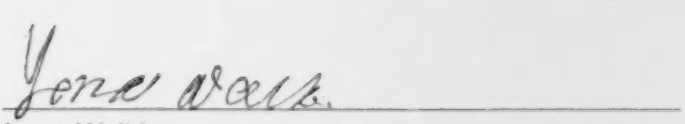

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RECOMMENDATION STATEMENT

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MANAGEMENT PLAN

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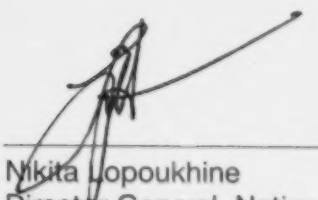

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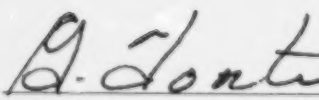

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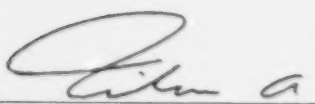

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1.0 EXECUTIVE SUMMARY 1

2.0 BACKGROUND 2

2.1 Park Establishment History 2
2.2 Regional Setting 2
2.3 Aulavik Landscapes 2
2.4 Vegetation 3
2.5 Wildlife 5
2.6 Cultural History 6
2.7 Present Park Use 6

3.0 PARK PURPOSE AND MANAGEMENT OBJECTIVES 9

3.1 Purpose of Aulavik National Park 9
3.2 Vision Statement for Aulavik National Park 10
3.3 Park Management Objectives 12
3.4 Ecological Integrity Statement 12

4.0 MANAGEMENT AND PROTECTION OF THE PARK ECOSYSTEMS 21

4.1 Ecosystem-Based Management 21
4.1.1 Traditional Knowledge 21
4.1.2 Further Work in Ecosystem Management 21

4.2 Natural Environment 23
4.2.1 Research and Monitoring 23
4.2.2 Environmental Emergency 23
4.2.3 Management of Banks Island Bird Sanctuary No. 2 24

4.3 Cultural Environment 24
4.3.1 Inventory, Research and Monitoring Program 25
4.3.2 Inuvialuit History, Culture and Involvement 25

5.0 VISITOR MANAGEMENT AND PARK PRESENTATION 26

5.1 Visitor Guidelines 27
5.2 Waste Management 28
5.3 Air Access 28
5.4 Outfitting and Guiding 29
5.5 Park Presentation 29
5.6 Education 30

6.0 ZONING 31

6.1 Zoning in National Parks 31
6.2 Zoning in Aulavik National Park 31
6.3 Guided Over-Snow Vehicle Touring 34

7.0 ECONOMIC BENEFITS 36

8.0 REGIONAL INTEGRATION 37

8.1 Principles of Regional Integration 37
8.2 Inter-Agency Cooperation 37

9.0 ADMINISTRATION 38

9.1 Aulavik National Park Office 38
9.2 Staff 38
9.3 Park Cabins 38

10.0 ANNUAL REVIEW 39

11.0 IMPACT ASSESSMENT 40

11.1 Environmental Assessment Process 40
11.2 Decision Statement 40
11.3 Socio-Economic Statement 40

LIST OF MAPS

Map One - Regional Setting 3

Map Two - Aulavik National Park 8

Map Three - Zoning 32

APPENDICES 42

Appendix A - Definition of Terms 42

Appendix B - Linkages Between Aulavik National Park and Co-Management Partners 44

Appendix C - Memorandum of Understanding Concerning the Administration of Bird Sanctuaries Within National Parks 45

Appendix D - Summary of National Park Outfitting and Guiding Requirements 47

Appendix E - Management of Migratory Bird Sanctuaries in the Inuvialuit Settlement Region 48

1.0
EXECUTIVE SUMMARY

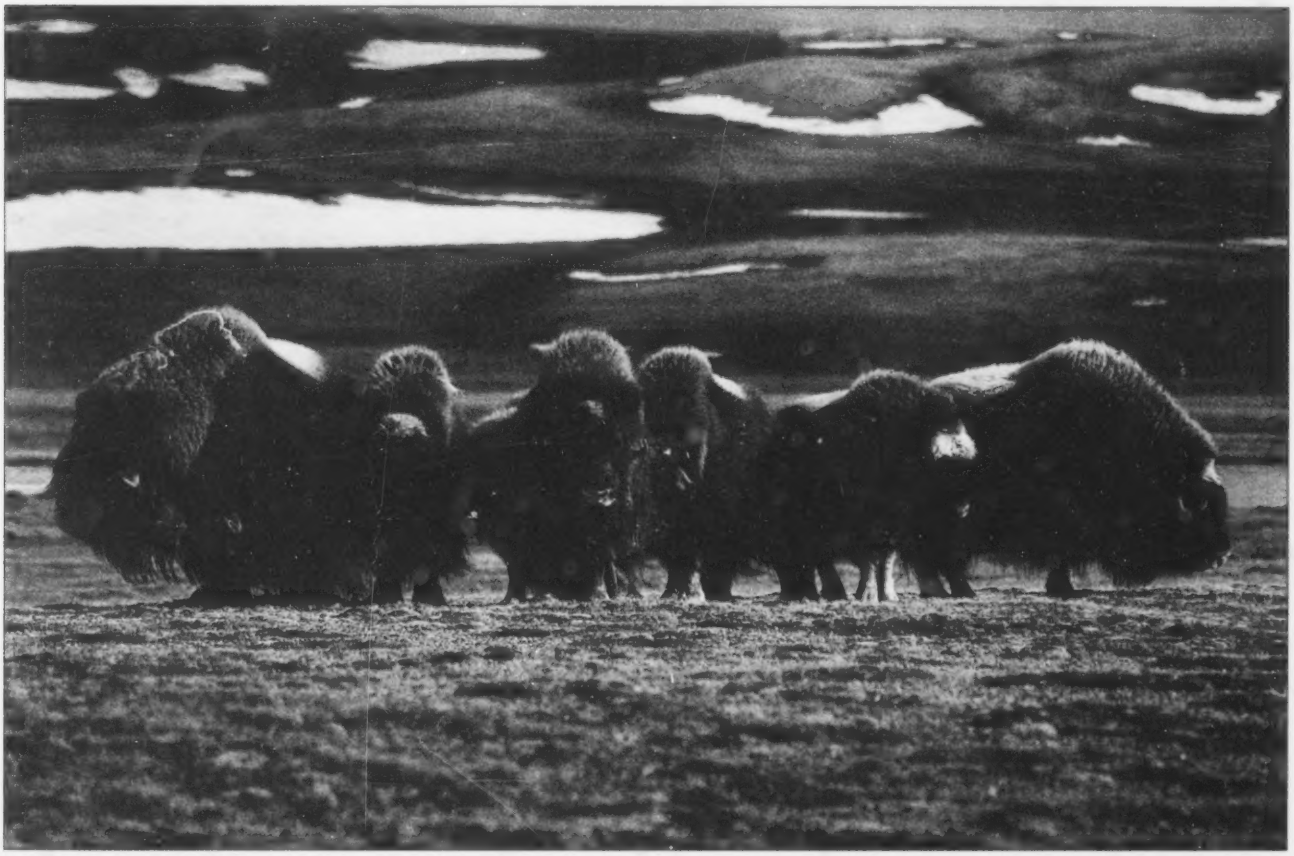
Park management plans guide park managers in the protection, management and operation of a national park. A park's management plan outlines the appropriate balance of preservation, education and visitor use goals and sets out the framework and priorities for achieving them. It also identifies a strategy for park managers, stakeholders and the general public for working together over the long term.

The Aulavik National Park Management Plan was prepared cooperatively between Parks Canada and Inuvialuit interests.

The opportunity for the broader Canadian public to contribute their knowledge, expertise and suggestions was also a cornerstone of the planning process. Public meetings were held in Sachs Harbour, Inuvik and Yellowknife to review drafts of the plan.

This plan sets out the strategy for the care and management of Aulavik as a wild, unspoiled Arctic wilderness with outstanding natural and cultural values. It recognizes the right of Inuvialuit for continued subsistence usage in the park, reflecting the importance of traditional users who value the land, and ensuring that the park remains an oasis of beauty as well as a model of conservation practices.

In keeping with the *National Parks Act* and the park establishment agreement, this plan will be reviewed, with public involvement, every five years.



Muskoxen

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2.0 BACKGROUND

2.1 Park Establishment History

Land for Aulavik National Park was formally withdrawn in 1994 following the completion of "An Agreement for the Establishment of a National Park on Banks Island" (ANPEA, 1992). This agreement is between the Inuvialuit, the Government of the Northwest Territories, and the Government of Canada. The establishment of Aulavik is part of Canada's Green Plan initiative to complete the system of national parks. Aulavik will be formally established with an amendment under the *National Parks Act*.

Aulavik will also be established within the legislative framework of the *Inuvialuit Final Agreement* (IFA) (1984) and the subsequent *Western Arctic (Inuvialuit) Claim Settlement Act* (1984). The IFA and Act established a new, environmental management mechanism for the area known as the Inuvialuit Settlement Region (ISR). Under the provisions of the IFA, the Inuvialuit, as represented by the Inuvialuit Game Council, and where appropriate the co-management boards, are consulted on all issues relating to fish and wildlife and their habitat. Two other national parks, Ivvavik and Tuktut Nogait, are located in the ISR (see Map 1 - Regional Setting).

2.2 Regional Setting

Aulavik, which means "place where people travel" in the native language of Inuvialuktun, is located on northern Banks Island in the Northwest Territories. Locally, the island is also referred to as Banksland. Banks Island is the most westerly island in the Canadian Arctic archipelago. The park encompasses 12,275 square km of the Western Arctic Lowlands natural region.

Sachs Harbour, NWT, (population 140) is the closest community, located 250 km from the southern park boundary. Services in town include an airport, nursing station, a general store, several guest houses, and independent tour and sport hunting guiding operations. Residents of Sachs Harbour have a long tradition of use of the park area, and continue to travel to the park area for hunting purposes. Travel to the park by snowmobile takes approximately two days.

The Town of Inuvik, located about 500 km to the south west of Sachs Harbour in the Mackenzie Delta, is the closest major service centre to Banks Island. Scheduled flights link Sachs Harbour to Inuvik.

2.3 Aulavik Landscapes

Landscapes in the park are diverse, ranging from low, undulating hills to butte upland areas. The main characteristic of Aulavik is the mixture of lush, sedge meadows and polar desert areas which support little or no plant growth. This is the result of very low annual precipitation and a sixty day growing season. Areas of abundant plant growth are limited to valleys and areas near lakes where extra water is available.

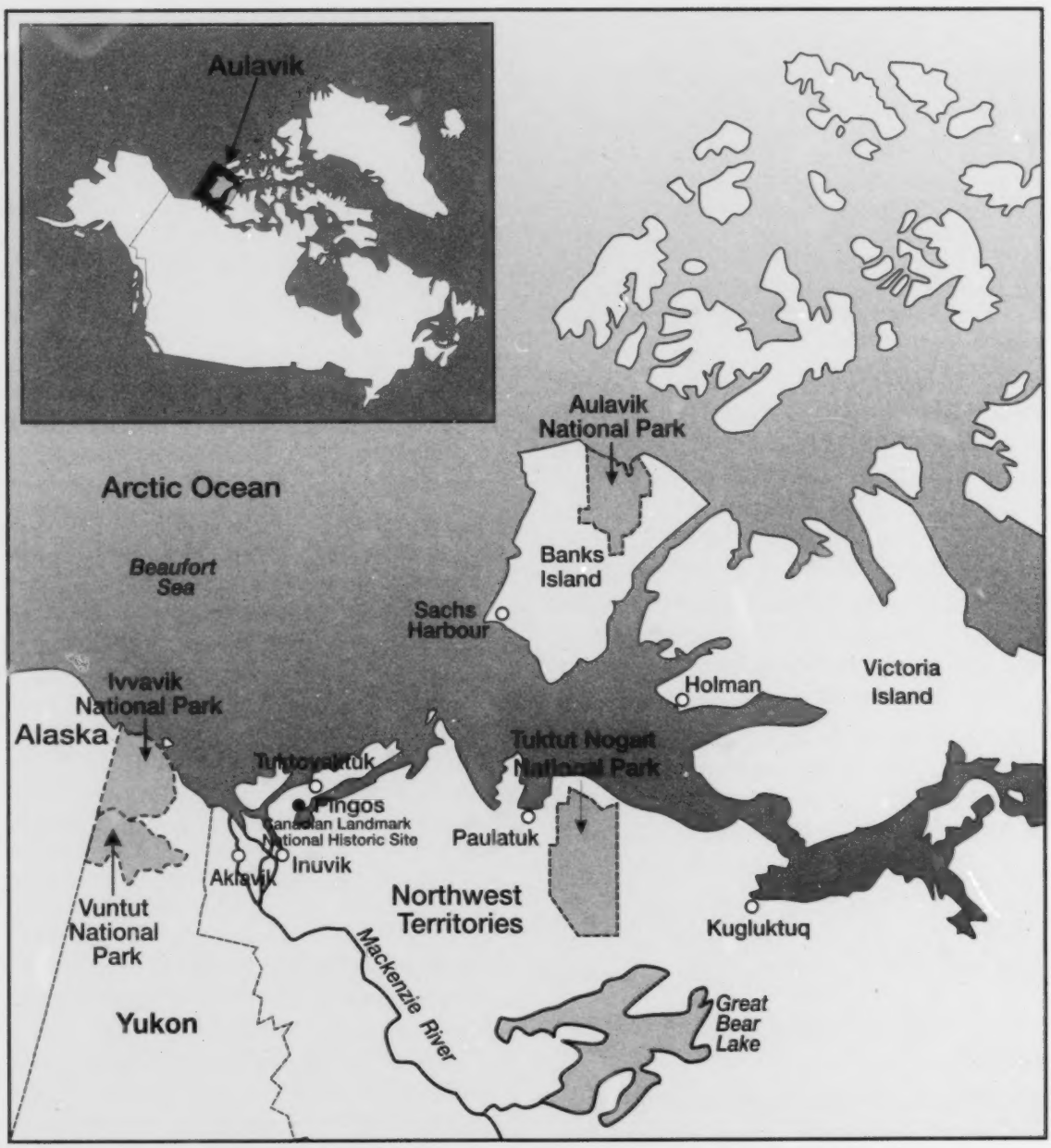
The Thomsen River, noted as the northernmost navigable inland waterway in Canada, is a major feature of the park, entering the south end of the park near its headwaters, and flowing through the park to the coast at the north end of the park. The Thomsen has a broad, relatively lush valley, flanked by gently undulating hills. Its major tributary is the Muskox River which flows in from an area of poorly drained wetlands and peat polygons.

Along the northwest coast of the park, sheer cliffs rise over eighty metres from the waters of M'Clure Strait. The central portion of the northern coastline is dominated by Castel Bay and Mercy Bay, which cut inland 15 km. To the south east of Mercy Bay, steep canyons dominate the landscape. Further south a sparsely vegetated, upland plateau rises 450

metres above sea level, and forms the height of land between the Thomsen River and the Prince of Wales Strait. West of Castel Bay, arid, desert-like badlands predominate.

2.4 Vegetation

The park landscape is sparsely vegetated with dwarf willows, grasses and forbs. The dominant vegetation types are classified as upland barrens and rocky barrens. Plant species composition, distribution and abundance are a reflection of the harsh Arctic conditions, which has an eight week growing season, soils that are poor in essential nutrients, constant drying winds, and minimal water supply.



Map 1 - Aulavik National Park - Regional Setting

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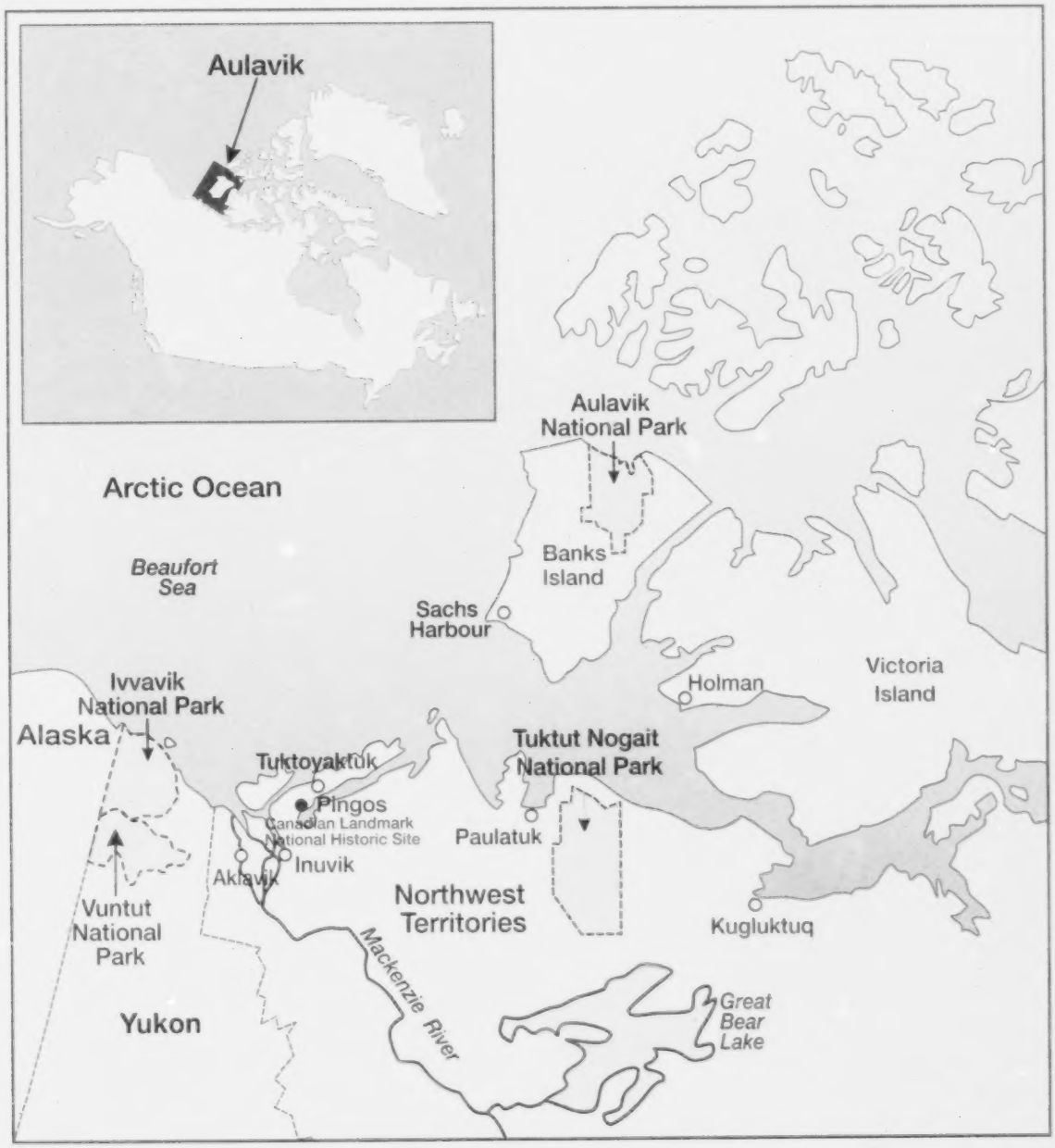

Map 1 - Aulavik National Park - Regional Setting

Camping on the Thomsen River

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Within the predominantly grey and brown landscape there are green oases of lush sedge and grass growth. Wet sedge meadows develop because of increased moisture available from melting snow banks or from streams or lakes. The meadows are critical wildlife habitat, supporting many muskcx herds, small mammals and birds. The wildlife in turn fertilize these oases with their droppings and contribute to the maintenance of meadows. This is a symbiotic relationship between plant and animal species.

The flora has both high Arctic and low Arctic elements. Along the north coast and on upland ridges the vegetation is similar to that found on the high Arctic islands to the north.

Sheltered valleys and south-facing slopes have plants that grow a thousand kilometres further south. Part of the park has never been glaciated and in this area there are unusual plant species.

There are six main vegetation types in Aulavik National Park:

- Rocky and stony barrens have less than 10% of the ground covered by plant growth. This type occurs in 12% of the park and can be found on windblown ridges and high rocky uplands. Mountain aven, dry sedges and hardy forbs are among the few plants that survive here.
- Dry tundra dominates a quarter of the park on upper slopes, plateaus, ridges and large plains in the dry interior. The vegetation covers between 10 and 50% of the ground and is dominated by mountain aven, arctic dwarf willow, poppies and forbs.
- Dwarf shrub tundra grows on moderate, moist but well drained slopes in 13% of the park area. Most commonly, mountain aven and arctic dwarf willow can be found growing with a variety of herbs, small sedges and grasses. Plants cover between 50 and 90% of the ground.
- Hummock tundra is found on moderate to steep slopes with relatively stone free soil, where round, vegetated clumps of 20-40 cm height develop. Over a quarter of the park is dominated by these hummocks. Vegetation covers between 30 and 70% of the surface and is dominated by arctic dwarf willow, arctic heather and mountain avens.

- Mesic meadows have a plant cover of between 75 and 100%. The soil is wet but not waterlogged and the vegetation is dominated by graminoids. These meadows occur in humid depressions, on slopes with some seepage or near ponds in a total of 15 % of the park.
- Wet sedge meadows occur in 7% of the park area in wet lowlands or slopes. The soil is waterlogged or under water. Sedges cover usually 100% of the soil and only a few forbs grow in between.

2.5 Wildlife

Of the larger mammals, muskoxen are the most numerous and are identified often with Banks Island and the park. Current estimates (1998) place the non-calf muskoxen population at 45,833 animals, up from estimates of 3,800 in 1972. The population increase has been attributed to reduced predation. Wolf numbers were reduced during poisoning programs conducted during the 1960s. Considerable effort by local Inuvialuit and Government of Northwest Territories biologists is being directed toward understanding the reasons for this growth and the impacts that it may be having on the ecosystem. Using GIS analysis of survey data, it has been estimated that 11,200 muskoxen were in the park during early July, 1994. This is approximately 25% of the Banks Island muskox population.

The 1998 non-calf estimate for Peary caribou on Banks Island was 436 animals. The high Arctic population of Peary caribou is recognized as an endangered species, as a result of a population crash over the last two decades. The decline was likely caused by the cumulative effects of harvest, winter die-off, predation, inter-island movement and possibly a deterioration of range conditions. On Banks Island, the possibility of competition from muskox is being assessed by the Government of the Northwest Territories. There is overlap in the distribution and diet of the two species. It is not yet known if there is competition for forage. The Banks Island population of Peary caribou is considered low but stable and potentially recovering due to management efforts. The park does not have documented caribou calving, summer or winter ranges. The Peary caribou is a source of food, clothing and raw materials for artwork of Sachs Harbour residents, and they are particularly concerned about the low population levels.

Wolf numbers have increased during the 1990s. In 1998, 50 wolves were observed during a whole island transect survey. Most of the wolves were observed on the northern portion of the island. Other mammals found in Aulavik include Arctic fox, Arctic hare, ermine and two species of lemming. Marine mammals found along the north coast are ringed seal, bearded seal, beluga and polar bears. These species do not occur in high numbers in the park. Walrus have been sighted in the Banks Island area, but are rare visitors.

Initial bird inventories indicate that over forty species of birds make seasonal use of the park. Only two species, ptarmigan and raven, are permanent residents. Birds of prey include snowy owls, rough-legged hawks, gyrfalcons and peregrine falcons. The abundance of these species seems to be greatly dependant on the abundance of lemmings.

It is possible that the Thomsen River watershed is the most northerly example of a multi-species freshwater fish community. In areas of the Arctic farther north, the species present are either only Arctic char and nine spine stickle-back, or single species communities of Arctic char. The Thomsen watershed has at least six species, including lake trout, least cisco, lake herring, nine spine stickleback and fourhorn sculpin. The Thomsen is also noted as important spawning and nursery habitat for Arctic char. With the exception of the lake trout, all of these species spend a portion of their lives in salt water.

Landlocked char are found in several of the larger lakes in the park such as Nangmagvik. Overall, very little is known about the ecology of char on Banks Island.

2.6 Cultural History

Early Inhabitants

Some of the earliest archaeological sites in the Canadian Arctic are within Aulavik National Park. Banks Island, as the westernmost island in the Arctic archipelago, stood on the route traversed first by Aboriginal hunters, some 3,800 years ago. These "Paleoeskimo" peoples are the first known inhabitants of the Canadian Arctic. They were followed by groups who appear to have moved from the west throughout the Arctic. The archaeological cultures are identified mainly on the basis of material goods such as tools, and by evidence of their lifestyles such as dwelling types and cache design. It is now confirmed that Thule peoples occupied the park area during AD 1000-1600. Thule peoples occupied sites on the south end of the island and practised an economy focused on bowhead whale harvesting.

In more recent times, Inuinnait from Victoria Island, who are the descendants of the Thule, travelled and lived in what is now the park. Caches for storing muskox or caribou meat and supplies, tent rings, hearths or fireplaces, possible graves and other features have been found. This evidence suggests that the Inuinnait were active in the park area throughout the 19th century.

Post-European Contact Inhabitants

Anthropologists have speculated that the most recent descendants of the present day Inuit moved onto Banks Island (at least seasonally) between 1853 and 1890 in order to salvage valuable wood, metals and other materials from the abandoned Royal Navy vessel *HMS Investigator*. The Investigator, under the command of Captain Robert M'Clure, had been part of the Franklin search expeditions. After spending two winters locked in ice in Mercy Bay at the northern end of Banks Island the ship was deserted in 1853. Later the wreck itself either sank or drifted away.

From the late 1920s until the decline of the fur trade in the 1970s, Banks Island was the most productive Arctic fox trapping ground in the world. Eventually families from the Mackenzie Delta, Victoria Island, and Tuktoyaktuk converged at the southwestern tip of Banks Island and set up the permanent community of Sachs Harbour, or Ikaahuk. Today residents of the town of Sachs Harbour occasionally use the north end of the island, but Aulavik is seen as a reservoir for sustaining wildlife populations.

Throughout the 1970s, gas and mineral exploration was carried out through much of Banks Island. No extraction facilities were ever established, although evidence from this activity exists in the form of abandoned fuel caches, drilling holes, seismic lines, and terrain scarring.

2.7 Present Park Use

Inuvialuit have lived on Banks Island and in the area of Aulavik National Park for generations. Because the distance to the park from Sachs Harbour requires two to three days of travelling, overall use levels are low within the park. Subsistence hunting may draw a few parties per season to the park. Subsistence usage (which includes trapping) in the park by Inuvialuit is protected in the ANPEA (2.01) and the IFA (14.(6)) and (23).

Two cabins are the only permanent structures in the park. One at Nangmagvik Lake, generally known as the Polar Bear cabin, was built in 1987 by the Government of the Northwest Territories who used it as a base camp for wildlife research (see 9.3). An older cabin, generally referred to as the Green cabin, is situated near the southern park boundary along the Thomsen River. It is believed to have been built in the 1950s by the Geological Survey of Canada, and is presently in a poor state of repair.

Wilderness seekers come to the park to enjoy the rugged terrain, canoe the Thomsen, experience culture, or hike the land. Currently, back country visitor use levels are low, with annual visitation ranging up to twenty visitors. Periodic ice-breaking cruise ship visits along the north coast of the park can increase visitation up to 100 visitors per year. Because the park is in its infancy, the present visitation levels are not considered to be an indication of either potential visitation or carrying capacity.

Researchers in the natural and cultural sciences, from both provincial and federal governments, are continuing work on a number of projects in the park. In 1996, Parks Canada established two permanent weather monitoring stations in the park. These stations will provide important baseline information on precipitation, temperature, and other basic weather information.

The Canadian Wildlife Service administers the Banks Island Migratory Bird Sanctuary No. 2 which occupies the northern portion of the park (see Map 2 - Aulavik National Park.) It was established in 1961 to protect moulting and staging habitat of brant and snow geese. Section 4.2.3 and Appendix E address the role of the bird sanctuary in the park.

Sandhill crane

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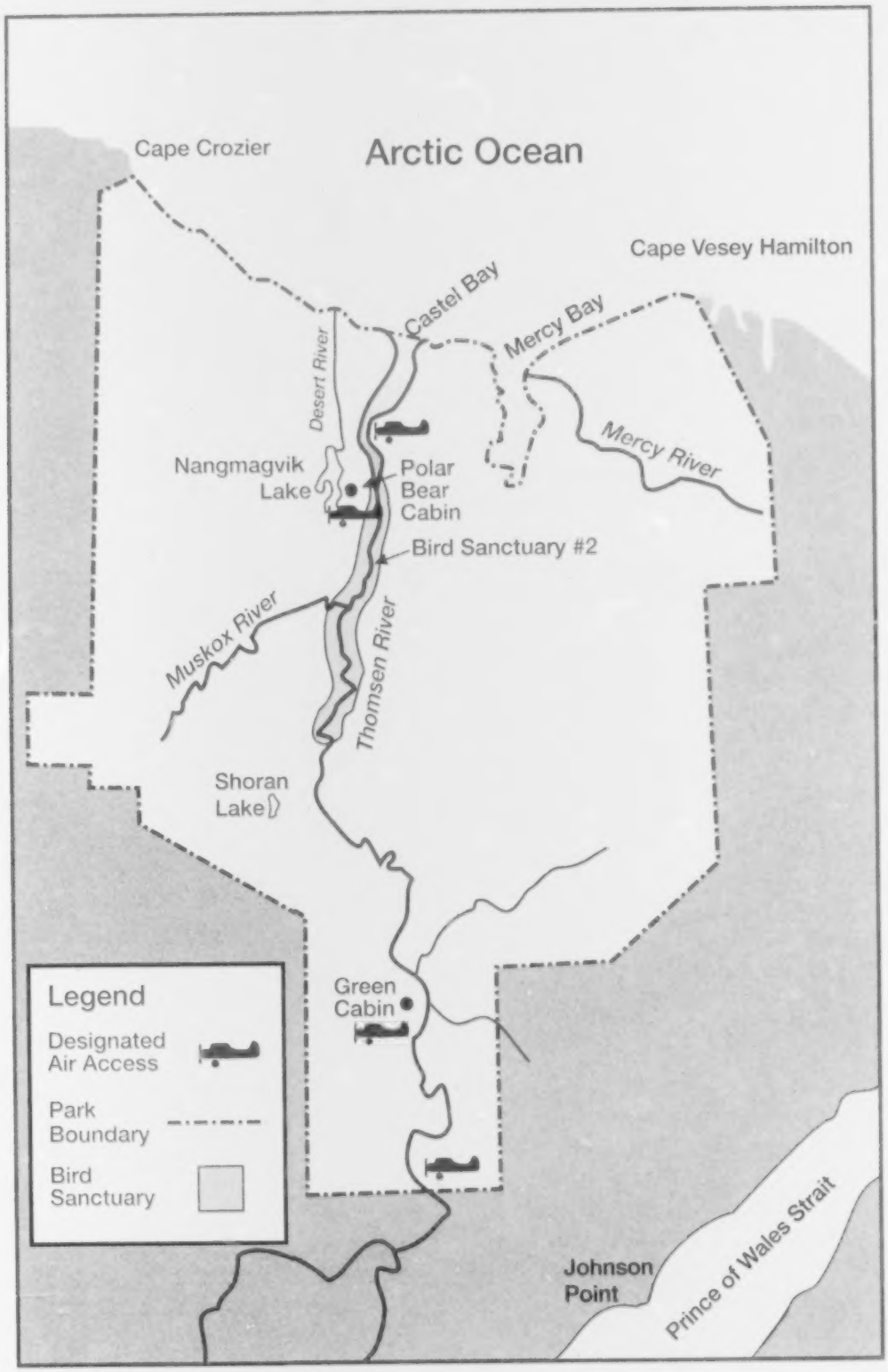
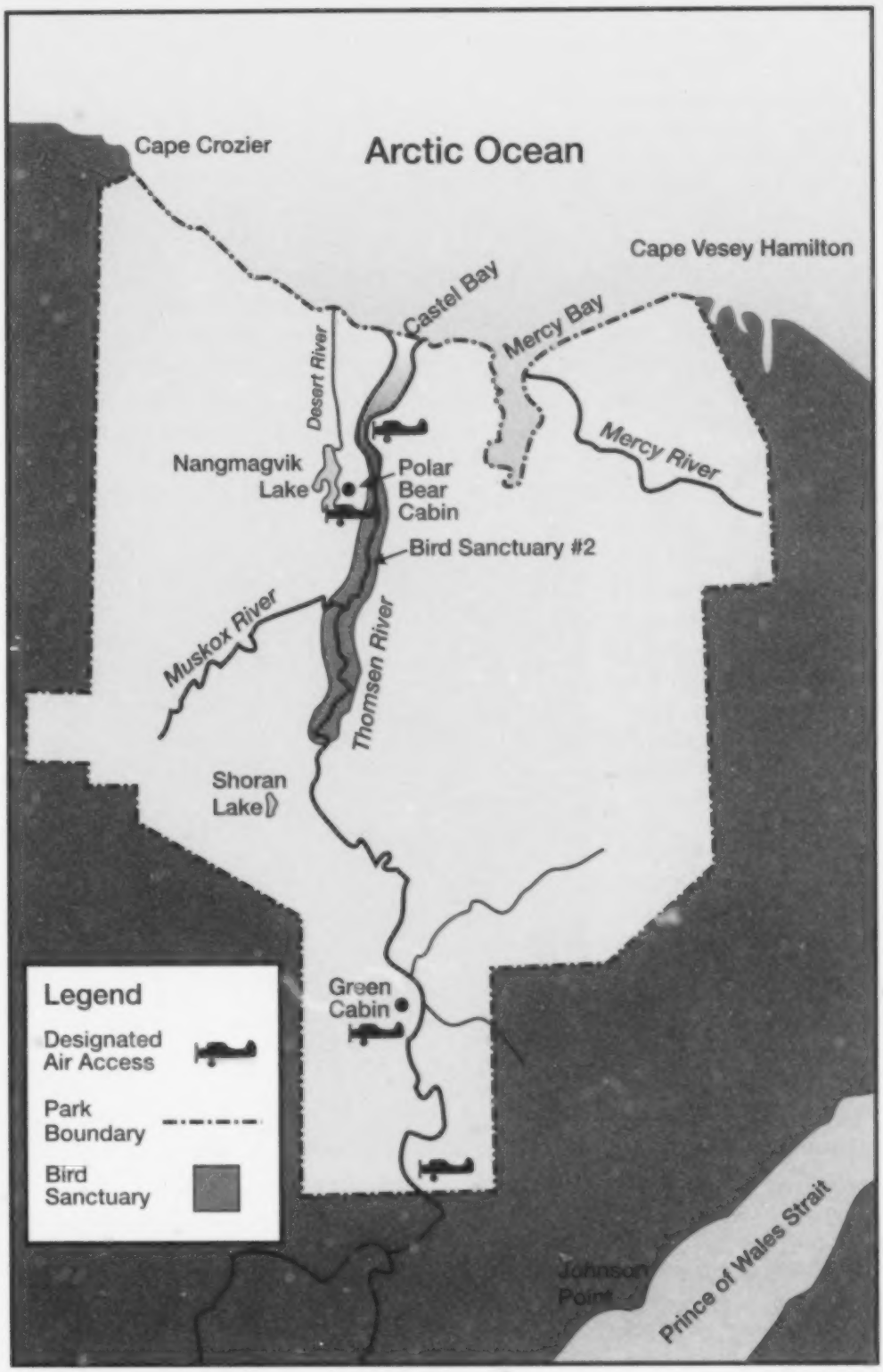


Map 2 - Aulavik National Park



Map 2 - Aulavik National Park

3.0

PARK PURPOSE AND MANAGEMENT OBJECTIVES

3.1 Purpose of Aulavik National Park

The primary purpose of the park as stated in section 2.01 of the ANPEA is:

"The purpose of the park is to protect for all time a representative natural area of Canadian significance in the Western Arctic Lowlands natural region, and to encourage public understanding, appreciation and enjoyment of the area so as to leave it unimpaired for future generations while permitting subsistence usage and trapping by the Inuvialuit."

Aulavik also protects a significant portion of Banks Island. This level of protection will contribute to the ecological integrity of the larger ecosystem by promoting natural functioning and evolution of ecosystems on Banks Island and potentially to those of adjacent lands and waters. Aulavik, as part of the larger ecosystem, will contribute to the maintenance of genetic diversity.

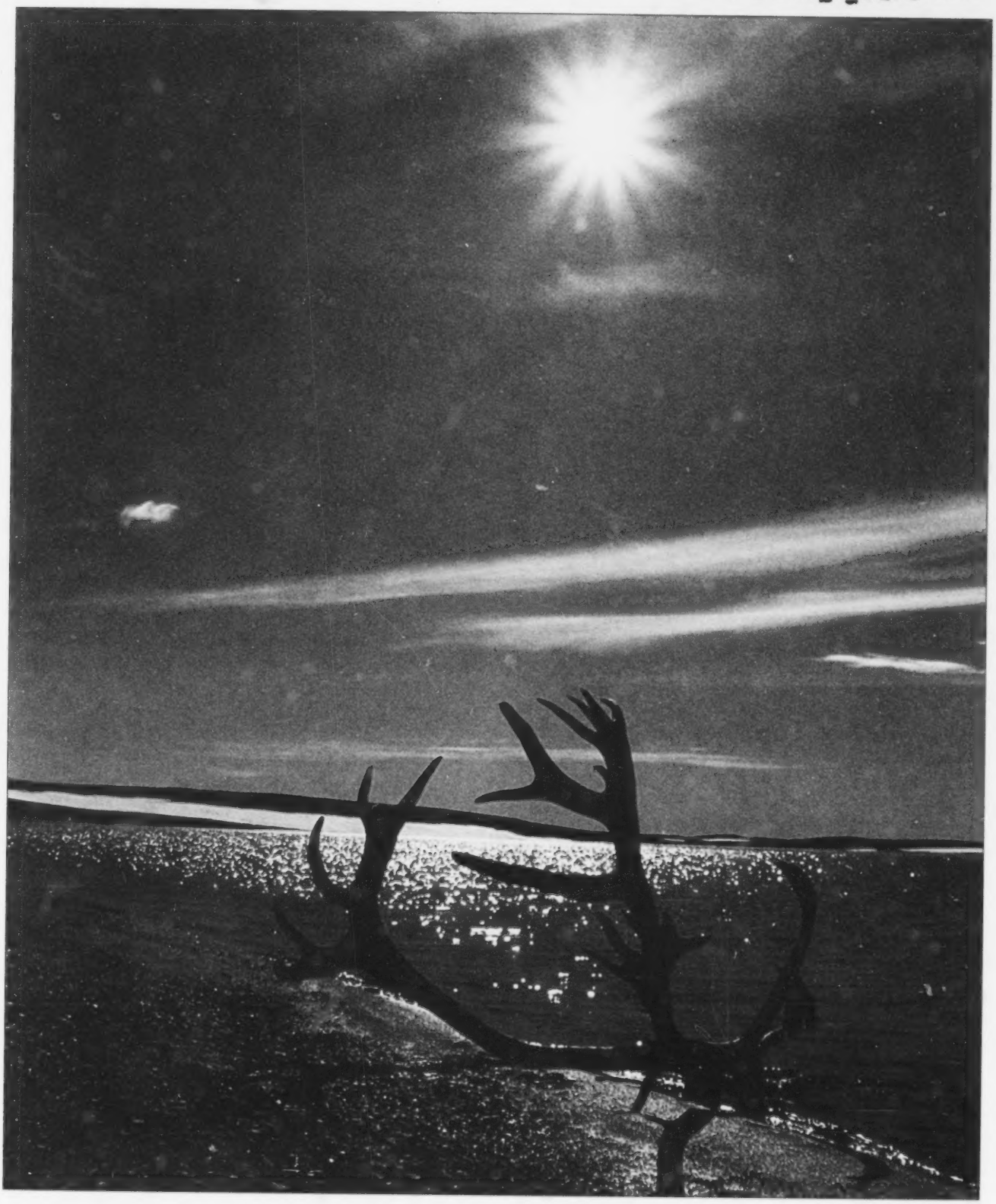
Aulavik also plays an important role as part of a worldwide network of ecological benchmarks against which changes in local, regional and global environments can be measured. As part of this network, Aulavik will serve as an *in situ* gene pool to protect part of the genetic diversity of the planet. Aulavik also helps to strengthen the human-land relationship by supporting subsistence usage based on conservation.

3.2 Vision Statement For Aulavik National Park

This vision statement describes a desired future of what Aulavik should be like in 15 years. It is an inspirational view of a future for the park that helps to focus and guide the planning, management and operation while fostering closer cooperation and integration between people who care for and use the park.

In Fifteen Years...

- Aulavik will have the same high level of ecological integrity that it does today;
- Aulavik will be an exemplary model of subsistence usage for national parks where traditional uses are allowed;
- Research and monitoring programs will have yielded a greater understanding of the state of park ecosystems, influences on ecological integrity, and appropriate management actions that maintain ecological integrity;
- Aulavik will continue to serve as an important contributor to the maintenance of wildlife and plant species on Banks Island;
- Aulavik's archaeological features, which span over 3000 years of history, will continue to be protected and presented for the benefit of Inuvialuit and all Canadians;
- Aulavik will be an inspiration, especially for youth, of stewardship and proprietorship for the park, its resources and all of Banks Island;
- The residents of Sachs Harbour will have developed a prosperous tourist infrastructure based largely in town and will be providing most of the commercial tourism-related services to visitors to the park;
- Aulavik will be used by the Inuvialuit and Parks Canada as an exemplary model of low impact visitor use both in terms of impact on ecological integrity and on wilderness experience;
- Aulavik will be renowned by ecotourists, naturalists and adventure travellers as a premier destination for Arctic wilderness experiences;
- Traditional knowledge, scientific research and oral histories will provide a greater understanding of the wildlife populations in the park and on Banks Island; and
- There will be a much greater understanding of the ecology of, and management actions for endangered species, including Peary caribou.



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3.3 Park Management Objectives

Section 3.03 of the ANPEA provides the following guidance for park management objectives:

"The Park shall be operated and managed to protect the natural character of the Park and the Park's wildlife populations and their habitat, pursuant to the terms of The National Parks Act."

The Canada National Parks Act (2001) provides further guidance for park management objectives.

More specific park management objectives for Aulavik National Park are:

1. To protect the integrity of ecosystems and cultural resources of the park by participating respectively with: the co-management process with the Inuvialuit Game Council (IGC) and co-management bodies, and; the relevant Inuvialuit organizations under the Inuvialuit Regional Corporation (IRC).
2. To develop an understanding of the ecosystems within the park in support of the park's long term protection purpose.
3. To ensure that the integrity of the natural and cultural resources is not degraded over time, by identifying conditions and by monitoring these conditions carefully.
4. To ensure that the ties between the Inuvialuit and the land are maintained through subsistence usage.
5. To promote and encourage the education, training and development of Inuvialuit youth so that they may become equal participants in the ongoing management of the park.
6. To facilitate public appreciation, understanding, and enjoyment of the park through presentation and interpretation of natural and cultural heritage, and present day use of the park, including sustainable, traditional, cultural use.
7. To facilitate appropriate visitor use and tourism in the park, and to increase visitation and public awareness of the park.
8. To ensure that the majority of the economic benefits of the park accrue to the Sachs Harbour Inuvialuit.
9. To ensure that ongoing traditional activities and subsistence usage are not affected by tourism.

3.4 Ecological Integrity Statement

The ecological integrity statement plays a central role in setting out long term management. It does this by:

- identifying the basic values of the ecosystem which the park is mandated to preserve;
- setting targets and minimum conditions for management; and
- identifying anticipated problems in achieving these minimum conditions and general approaches to addressing them.

Three guiding principles for the ecological integrity statement are taken from the *Inuvialuit Final Agreement,* the *National Parks Act* and the *Parks Canada Guiding Principles and Operational Policies* (1994) which state, respectively:

"The relevant knowledge and experience of both the Inuvialuit and the scientific communities should be employed in order to achieve conservation."

"...the maintenance of ecological integrity through the protection of natural resources and processes will be the first priority when considering zoning and visitor use."

"National Park ecosystems will be given the highest degree of protection to ensure perpetuation of natural environments essentially unaltered by human activity."

A) Description of the Park Ecosystems

Radiation and temperature

Aulavik National Park receives as much energy from the sun on a summer day as places near the equator. However, in Aulavik the energy is distributed over 24 hours, while in the south it is concentrated into half this time. As a result, temperatures are very even during an Arctic summer day and there is only a slight decrease at night. Plants can grow day and night during the short growing season of less than 60 days, which results in high daily yet low annual rates of plant growth. Mean annual temperatures are about - 12°C and mean July temperatures 8°C.

Permafrost

As a result of the low temperatures, the ground is permanently frozen. Only the top layer thaws up to one metre deep during the summer. Every time the water in the soil turns back into ice, it expands. This leads to a number of typically Arctic soil features like the pushing up of small mounds (hummocks and palsas), the formation of large circular patterns (polygons) on the surface, and the slow movement of rocks down slope (frost creep).

Water and snow

One of the most important aspects of the permafrost, however, is the fact that it keeps water from draining away. Meltwater in the spring accumulates in depressions and forms innumerable ponds and bogs of all sizes and shapes. These areas turn into oases of life and stand out with their abundant growth of sedges and grasses. Everywhere else, water is extremely sparse in this ecosystem because the park receives less than 150 mm of precipitation per year.

Most of the precipitation falls as snow. However, over 70% of the water in this snow is lost because it turns into vapour and dissolves in the air before the spring melt. During the winter, the snow is redistributed by frequent high winds. Many areas, particularly on top of ridges, are clear of snow all winter and are important grazing areas for caribou, muskox and Arctic hare. Sedge meadows are usually covered with 10 - 50 cm of hard packed snow. A lot of snow is packed into hard snowdrifts that can be several metres deep. These snowdrifts are preferred wintering habitat for lemmings. These animals are insulated from the cold and protected from predators underneath the hard snow cover. Snow banks are also extremely important as a source of moisture during the spring melt and the growing season. Water trickling from these banks determines to a large extent where vegetation will grow more abundantly.

Plant growth

Besides the patchy distribution of water, plant growth is also limited by the short growing season and the very limited amount of available nutrients, particularly the lack of nitrogen and phosphorus. As a result, the vegetation of the park is dominated by upland barren and rocky barren plant communities. These large areas support just a few dwarf willows, grasses and forbs growing on almost bare soil. Some small spots have an increased supply of nutrients due to bird droppings, animal carcasses or animal burrows. Plants respond with luxuriant growth to the improved conditions and are often two to three times larger than plants on nearby areas.

However, even the most productive plant communities in Aulavik produce less than one-fifth the annual growth of temperate systems like boreal forests. In Aulavik, plant growth varies from 40 - 80 g per m^2 above-ground and 60 - 100 g per m^2 below-ground per year in the wet sedge meadow stands, to 10 - 40 g per m^2 above ground and 5-20 g per m^2 below-ground per year in hummock tundra and upland barren stands. Stony and rocky barrens produce less than 1 g per m^2 per year. In contrast, a boreal forest may produce 400 g per m^2 per year. The slow Arctic rate of growth indicates the sensitivity of this ecosystem to damage.

Any disturbance takes much longer to heal and grow over. For example, it would take from 20 to 40 years for the creeping Arctic willow to regrow 30 cm of branch that had been broken off. This slow healing is the reason why surface scars from aircraft landings can last for centuries.

Much of the growth and plant material in the most productive Arctic plant communities occurs below ground. Plants store ten times more organic matter below the surface (up to 2 kg per m^2) than above it (0.2 kg per m^2). Arctic growth forms tend to store nutrients this way to allow a quick start at the beginning of the growing season in spring when the soil is still frozen and the plants use stored nutrients to grow. Because of the low nutrient availability in the soil, most Arctic plants recycle 40 - 90% of the nutrients in their leaves at the end of the growing season. The nutrients are moved to special storage organs below-ground.

Algae are important in wet areas because of their ability to use nitrogen directly from the air. Most other plants are not able to do this and nitrogen limits their growth. Therefore the extra nitrogen fixed by the algae boosts growth, especially around shallow ponds.

Herbivores

Herbivores in this area include mammals, birds and invertebrates (worms and insects). In drier areas, brown and collared lemmings feed on grasses and willows. Many authors refer to the dramatic oscillations in lemming numbers from year to year and to the fact that the breeding success of a whole assemblage of predators is dependent on the lemming cycle. In years when lemmings are scarce, snowy owls, jaegers, short-eared owls, Arctic foxes, rough-legged hawks and ermine produce few young and may fail to breed entirely. It appears that periodic "highs" occur in the Banks Island lemming populations but there is insufficient evidence to postulate a four-year cycle from direct observations. However, Arctic fox fur returns do appear to have a three-to five-year cycle which is probably related to the lemming cycle.

Muskoxen graze in wet sedge meadows almost year round. Only in late winter, when low temperatures harden the snow, is this vegetation inaccessible to them. They move to windblown ridges and slopes during that period. Caribou also use sedge meadows, but for the most part graze on upland vegetation and on hillsides. The Arctic hare prefers slopes and ridges and digs for Arctic willows in areas of shallow snow. Snowgeese often dig for the large underground storage organs of Arctic grasses in sedge meadows in the summer. Ptarmigan prefer seeds and flowers in drier places.

Depending on the area, up to 60% of the available plants are consumed by the large herbivores. In most other ecosystems, no more than 10% of plants are taken. Research has found that the herbivores in the Arctic, particularly muskox, actually fertilize the plants by returning the nutrients back to soil faster than if the plants would just decay. The natural decay of the plants is slowed in the Arctic because of low temperatures and plant eaters help to speed up the process. A symbiotic relationship between plants and animals has established itself over the millennia. Without the help of herbivores, only 10-30% of the plant material breaks down in the first year after the death of a plant. In this case the dead plants accumulate and form thick mats of peat in areas where plants grow well. Most (95-99%) of the nutrients necessary for plant growth are tied up in the peat. Only a small amount (1-5% of all the nutrients in the ecosystem) is available in the soil for plant growth. New nutrients enter the soil slowly through rain, mineralization of soil and nitrogen fixation from the air, but these amounts are extremely small (less than 0.3% of the nutrients in the system). It becomes clear that the slowness of the plant decomposition is a major reason why plants are starved for nutrients. In most areas the densities of herbivores are too small to change this situation.

Smaller plant eaters like worms and insects are barely visible but still important. They mostly feed on roots and dead plants. Because of the low temperatures, they also grow and develop very slowly. Arctic moths, for example, take 10 years or more to complete their life cycle from egg to mature adult.

The number of these small species that cannot maintain a constant body temperature is very low in the Arctic. Unlike in the south, there are no frost-free shelters in the ground that could protect them from freezing in the winter. Only a few species manage to survive the cold temperatures through special adaptations. Some increase the concentration of glycol (antifreeze) in their blood to keep from freezing.

Predators

Arctic foxes, Arctic wolves and long-tailed jaegers are the major predators in Aulavik. Foxes are both hunters and scavengers. Many foxes spend the winter on the sea ice, where they follow polar bears and scavenge. Wolves are the only predator that hunts muskox and caribou, but wolves will also scavenge and hunt for small mammals. Jaegers migrate to the park in the summer to feed on lemmings, bird eggs and young birds. Ermines, rough-legged hawks, peregrine falcons and snowy owls are also present. Among the insect eating birds, Lapland longspurs, snow buntings and sandpipers appear to be most common.

General animal adaptations

Animals have adapted in many ways to the special conditions of Aulavik. Seasonal migrations are very common, particularly in birds and fish. Over 90% of Banks Island birds, for example, are migratory. Some mammals in the park may also migrate, but this has not yet been proven for this ecosystem. What is clear, however,

Arctic Wolf

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is that some mammals, like muskox and caribou, adapt to the winter by lowering their metabolic rate and reducing forage requirements. Activity cycles are much longer and foraging periods shorter in the winter in many mammals. Physical adaptations such as short ears and tails, thick fur and rounded body shape also help to tolerate low temperatures.

Biodiversity

Arctic ecosystems are often viewed as barren landscapes. However, through special adaptations, an impressive diversity of life has managed to establish itself in Aulavik National Park. The number of recorded species of vascular plants presently stands at 160. Other taxonomic groups include 83 species of lichens, 97 mosses, 17 mammals, 79 birds and eight fish.

Land use history

There is evidence of human use of the park area for much of the past 3,800 years that humans have been known to inhabit the Arctic. People from all the major cultural periods have thus occupied Aulavik at some point. Although occupation was only sporadic, these inhabitants successfully adapted to the severe environment by developing specialised hunting and fishing techniques. Their modern day descendants, the Inuvialuit, continue this subsistence tradition to present times.

A major event from a material culture standpoint occurred in 1853, when the ship *HMS Investigator* was abandoned at Mercy Bay (see 2.6 - Cultural History). The remains of the ship became an important source of raw material, including metal and wood. The sudden availability of this material had a major impact on the movement, settlement patterns and lifestyle of the local people.

During the early 1900s, lucrative Arctic fox trapping drew the Inuvialuit from the Mackenzie delta, Victoria Island, the Tuktoyaktuk peninsula and Alaska's north slope to Banks Island. In a short period of time, Banks Island became the most productive Arctic fox trapping area in the world.

In the 1950s, a permanent RCMP post was established on the southern shore of Banks Island. This move was in response to the influx of people associated with the fur trade and as part of the federal government effort to assert Canadian sovereignty in the Arctic. As government and commercial services were established, trappers moved their families from scattered seasonal camps to the new community of Sachs Harbour on the south-end of the Island, about 200 km from the park. Hunters and trappers from the community probably affected the fox, wolf and caribou populations, particularly in the southern half of the Island.

As was the case throughout much of northern Canada, a wolf poisoning campaign was carried out in the 1960s and 1970s. On Banks Island, the purpose was to reduce wolf predation on Arctic fox in traps and to potentially enhance caribou and muskox populations.

During the 1970s, the greatest human intrusion in the area occurred. This was a period of intensive geological seismic work and oil and gas exploration throughout Banks Island. While the effects of this work on ecological integrity are probably limited, the evidence of the activities is widespread as scars on the land from heavy equipment, test wells and refuse.

Present human activities within Aulavik include subsistence hunting and fishing by the Inuvialuit of Sachs Harbour and canoeing and backpacking by visitors. The park ecosystem may also be affected by industrial activities outside its borders.

Neither the present nor the historic human activities in the park have been extensive. The ecosystem is therefore essentially unchanged by recent human activity and has a very high degree of ecological integrity.

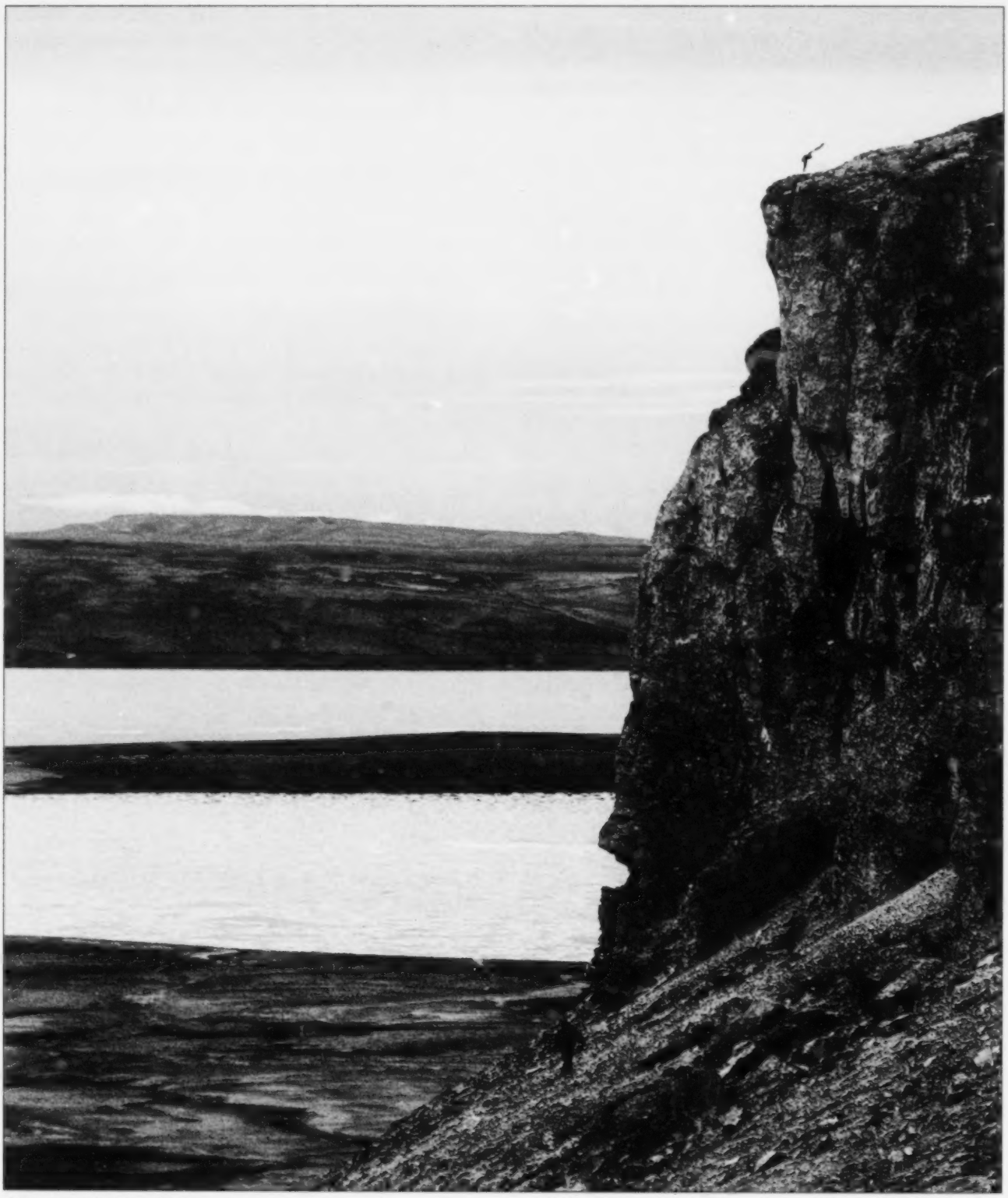
B) Management Goals and Criteria

Goal 1: The structure and function of the park ecosystems will remain unimpaired by stresses induced by human activity and are likely to persist, based on the following criteria:

- The climate in Aulavik maintains the following characteristics: Mean monthly July temperature below 14°C, mean annual temperature below -10°C, annual precipitation below 300 mm. Because Aulavik's climate is affected largely at the global scale, management actions at the ecosystem level may not be effective.
- Above ground primary production (plant growth) is no higher than 180 g per m^2 in wet sedge meadow stands.
- Permafrost underlies the entire park area. The active layer is nowhere more than 3 m deep.
- The percentage area of the park covered by the following cover classes is as follows: rocky and sandy barrens, 11.7%; dry tundra, 24.5%; dwarf shrub tundra, 12.9%; hummock tundra, 24.8%; mesic meadow, 15.0%; wet sedge meadow, 6.8%; shadows and unclassified, 1.75%; snow and ice, 0.8%; water, 1.61%.
- There is an overall net carbon gain in the system, particularly in wet sedge meadows. This means that there is an accumulation of peat in the long-term. Net peat carbon loss due to higher summer temperatures would mean a major change in the ecosystem.
- The number of species in all taxonomic groups is maintained at the levels outlined in the description of the park.
- The majority of plants recycles 40 - 90% of the nutrients in leaves, rather than relying on taking fresh nutrients up from the soil.
- Less than 5% of all nitrogen and phosphorus in the system is taken up by plants from the soil. The majority of nutrients is inaccessible to plants.
- All non-migratory species occur in viable populations in the greater Banks Island ecosystem with grizzly bears and wolverines being the only exceptions. The latter two occur on Banks Island only occasionally and may maintain viable populations elsewhere.
- The following chemicals do not occur in the water of the Thomsen River and Nangmagvik Lake at significant levels:
  - chlorinated pesticides including toxaphene, chlordanes, lindanes and DDTs;
  - chemically stable volatile industrial compounds including PCB's and tri and tetra chlorinated veratrols;
  - herbicides such as trifluralin and triallate; and
  - chlorinated paraffins.
- The condition, quantity and dispersal patterns of all cultural artifacts are maintained. This includes all historic dwellings, caches, tent rings, tools, etc.

Goal 2: Public support for the principles of park management is critical to successfully achieving the ecological integrity targets. As a result, support by members of the target public audience is a management goal, as measured by the following criteria:

- The target audience for the park is identified.
- The audience is informed about the condition of the park and the major management actions taken by the park managers.
- The audience has an awareness of and appreciates the natural and cultural resources of the park.
- A communication strategy is developed to regularly inform the target audience, especially the community of Sachs Harbour, other Western Arctic communities, schools, co-management bodies and environmental groups.



Cliffs near M'Clure Strait

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- The audience has an awareness of the resources in the park and supports management actions taken by the park managers.
- Co-management groups are aware of and support park management programs in Aulavik.
- Co-management groups are actively involved in decision making.

Goal 3: In the development of this ecological integrity statement, it was recognized that Aulavik National Park differs from many national parks since it was established pursuant to a native land claim, the IFA. The IFA recognizes the Inuvialuit as having a special interest in the land and hence provides them with a legislated role in the ministerial decision making process independent of the public consultation process. This role (ensuring that the Inuvialuit are consulted on all matters relating to fish and wildlife and their habitat) is a requirement for management in Aulavik. This process for consultation is known as cooperative management (co-management). Consultation will be achieved by working through the co-management bodies established under the IFA (8.2), in reaching any decision affecting management in Aulavik. Specific details of consultation with the Inuvialuit on management issues will be defined in further work.

- Consultation will be achieved by working through the co-management bodies established under the IFA (see 8.2 - Interagency Cooperation) in reaching any management decision in Aulavik.
- Specific details of consultation with the Inuvialuit on management issues will be defined in further work.

C) Problems

The following is a list of current and anticipated problems for Aulavik. A problem is defined as a stressor that has the potential to negatively affect the ecological integrity of the park. Problems are grouped into the following four categories: A (Critical), B (Important), C (Minimal) and D (Unknown). Further work outlined in section 4.1.2 will provide further direction on how these problems will be addressed.

Loss of traditional knowledge (A)

Through the death of Elders, traditional knowledge of the park area is rapidly disappearing. An extensive oral history project is attempting to capture as much of the existing knowledge as possible.

Global warming (D,A)

Global circulation models predict that the Arctic will experience the most rapid warming in the coming decades. Climate and plant phenology monitoring programs are presently tracing the effect of this change on the park ecosystem. The results will be communicated via national and international networks.

UV -radiation (D,A)

The depletion of the ozone layer leads to an increase in UV-B radiation, particularly in higher latitudes. A UV-sensor on one of the automated weather stations monitors these changes. Results will be presented to a wide audience as part of the monitoring program.

Visitation (B)

Visitors and park staff may affect the ecosystem by scarring the soil surface, leaving waste and possibly removing artifacts. As a measure of protection, aircraft landings by visitors are restricted to designated areas. Frequently used campsites will be monitored in the future. Some vulnerable cultural sites will be monitored as well. All visitors will be informed about ways to minimize negative impacts on the land.

Toxins and pollutants (D,B)

A number of sites within or near the park have been affected by spot pollution. Park staff are cleaning up these sites wherever possible. A water monitoring program traces the effects of long-range transport of pollutants on aquatic resources.

Non-sustainable harvest (C)

There is minimal harvest of fish and wildlife in the park at this time. However, harvest beyond ecologically sustainable levels is identified as a potential problem should it occur. An ongoing harvest study program keeps track of the level of use. Fishing by visitors is monitored by a creel census.

Illegal activities (C)

Park patrols monitor activities within the park infrequently at this point. However, the remoteness and difficult access to the park makes illegal activities fairly unlikely.

Diseases (C)

Wildlife diseases are monitored by park staff and GNWT renewable resource staff on an opportunistic basis. Plant diseases will be monitored regularly.

Exotic species (C)

The occurrence of exotic species will be monitored by fixed plots that trace plant community compositions on a regular basis. Opportunistic observations during park patrols will also help to detect these species.

4.0

MANAGEMENT AND PROTECTION OF THE PARK ECOSYSTEMS

4.1 Ecosystem-Based Management

As directed by the ANPEA, the heritage resource conservation and protection program for Aulavik will be guided by the principles of both the *National Parks Act* and the IFA. Both these foundations for management recognize the importance of managing the park in the context of the broader ecosystem that extends far beyond the park's boundaries. Ecosystem-based management will provide an important management foundation for the park because it:

- recognizes that the ecological integrity of the park is affected by influences beyond the park boundary;
- works at identifying the interrelationships in the ecosystem; and
- provides a basis for multi-jurisdictional and partnership management frameworks.

In more specific terms, an ecosystem-based management approach to Aulavik will mean that:

- the scope of the management plan will look beyond the park boundary; for example, a strategy for keeping Thomsen River water clean must look not only at the river in the park, but its larger watershed and tributaries on Banks Island;
- the connectedness of the ecosystem must be considered when assessing impacts and prescribing management actions; and
- park management will be a cooperative process involving the Inuvialuit and other responsible government resource management agencies (see 8.0 - Regional Integration).

As with all ecosystems, the area of the greater park ecosystem for Aulavik cannot be defined easily. Watersheds are one way of seeing inter-relationships in the larger ecosystem. Other connections in the Aulavik ecosystem include wildlife habitats, and even global factors such as climatic change, ocean and air circulation. On this basis, the Aulavik ecosystem can at a minimum, be defined to consist of all of Banks Island and beyond. The park's connections in the bigger picture reinforce the need for cooperation in park management. This cooperation is essential for management. The IFA (14.(2)) states that, "in order to achieve effective protection of the ecosystems in the Inuvialuit Settlement Region, there should be an integrated wildlife and land management regime, to be attained through various means including coordination of legislative authorities." (See 4.1.2 - Further work in Ecosystem Management and 8.0 - Regional Integration.)

4.1.1 Traditional Knowledge

Local people, especially Elders, know a great deal about the region, its history, the land, environmental conditions, wildlife and habitats. Their information will be important in understanding regional ecosystems and cultural histories. Parks Canada is documenting Inuvialuit traditional knowledge of the natural and cultural resources in the park. Information being acquired consists of Inuvialuit traditional beliefs, oral histories, and the historical and cultural basis of place names within and adjacent to the park. This information will be used in park management where possible.

4.1.2 Further Work in Ecosystem Management

Further work will be required in the areas of natural and cultural resource management for the park. This work will take its direction from this management plan and will focus on more specific objectives and actions for the maintenance of the park's ecological integrity and management of the park's ecosystems. It will consider the principles of ecosystem-based management, and will therefore consider the park

Traditional meat cache along the Thomsen River

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in the context of the larger ecosystem and several jurisdictions.

The work plan will be cooperatively developed between Parks Canada and the Sachs Harbour Hunters and Trappers Committee, the Wildlife Management Advisory Council, (IGC), the Fisheries Joint Management Committee and other resource managers in the region. An important reference in this work will be the Sachs Harbour Community Conservation Plan (1992). Work will use, as a basis for describing the park's fundamental values, the ecological integrity statement described in 3.4. It will focus on the following subject areas:

1. Defining the steps for Parks Canada's consultation with the Inuvialuit through the co-management process.
2. Describing and mapping the Aulavik ecosystems.
3. Defining specific ecological goals to maintain the integrity of the park. The term ecological integrity integrates both the natural and cultural environment.
4. Selecting indicators and defining benchmarks of ecological integrity for the park, and threats to maintaining the park's long term ecological integrity.
5. Developing action plans to deal with known or potential threats to the ecological integrity of the park.
6. Developing and implementing a park ecological monitoring program that also contributes to monitoring regional ecosystem health.
7. Addressing regional and park wildlife management issues.
8. Developing and sharing a geographic resource data base between key agencies and groups to promote analysis, effective decision-making and information exchange and display.
9. Finding mutually satisfactory solutions to transboundary concerns and enhancing regional ecosystem health.
10. Other items as identified through consultation.

4.2 Natural Environment

In keeping with the park's objectives, management of the natural environment will be based on maintaining the park's and region's ecological integrity through cooperative environmental management with partners in the NWT, the Inuvialuit Settlement Region and other adjacent jurisdictions.

4.2.1 Research and Monitoring

The park management objectives express the importance of research and monitoring in the maintenance of ecological integrity. Aulavik represents the western Arctic lowlands natural region and provides an example of ecosystem integrity within this region. Ecosystem-based management goals will be adaptive and will be established at local and regional scales.

Coordination of research and monitoring between Parks Canada, other government agencies and research partners will occur through the co-management process (see 8.2 - Interagency Cooperation and 4.1.2 - Ecosystem Conservation Plan).

- Species and processes judged to be indicators of ecological integrity, including cultural resources will be monitored.
- Cooperation between Parks Canada and research partners will be encouraged to ensure regionally integrated and coordinated research and management (see 8.0 - Regional Integration).
- Research and monitoring activities will be managed to ensure that they have negligible environmental impact and are subjected to environmental assessment.
- Priority will be given to research that is supported by neighbouring communities and is integrated regionally.
- Traditional (Inuvialuit) ecological knowledge will be used.
- Environmental impacts in higher-use areas such as the Thomsen River area and cultural sites identified in 6.0 - Zoning will be monitored.
- The condition of vegetation in potential high use areas, such as campsites and trails will be monitored. Information from this monitoring will help to direct management practices to avoid or eliminate environmental impacts.
- Data for national State of Parks reporting will be collected.
- Park managers will work with wildlife management agencies in monitoring the endangered Peary caribou.
- Other ecosystem research and monitoring, appropriate to the park's objectives, will be undertaken as priorities, financial resources and public safety issues demand.

4.2.2 Environmental Emergency

The oil and gas industry may continue to explore for hydrocarbon resources in the Arctic Ocean. This creates the potential for an oil spill off the coast of Aulavik. To prepare for such an event, and to play a part in its prevention, links will be established with environmental emergency organizations. The IFA mandated Environmental Impact Screening Committee and Environmental Impact Review Board will be involved, and the *Canadian Environmental Protection Act* will apply, among other legislation. Ecological integrity monitoring will include efforts to detect oil and gas contamination.

- Parks Canada will participate in environmental assessments of proposed or existing oil, gas and mineral development activities that may have impacts on the park.
- The coastline, sensitive species and developments to detect potential environmental impacts will be monitored.
- Parks Canada will participate in regional environmental emergency preparedness.

4.2.3 Management of Banks Island Bird Sanctuary No. 2

Banks Island Migratory Bird Sanctuary No. 2 was established in 1961 to protect moulting concentrations of lesser snow geese along the Thomsen River valley and adjacent wetlands. The sanctuary encompasses approximately 142 km^2.

A Memorandum of Understanding (MOU) (Appendix C) was developed between the Canadian Wildlife Service (CWS) and Parks Canada in 1992. The MOU serves to confirm the basis on which the CWS and Parks Canada agree to cooperate in the operation and management of the bird sanctuary.

A management plan for all bird sanctuaries in the Inuvialuit Settlement Region was prepared by the CWS in 1992. Selected portions that apply to Banks Island Migratory Bird Sanctuary No. 2, including management goals, objectives and policies, have been included as Appendix E.

Continuing dialogue and communication between the Canadian Wildlife Service and Parks Canada will ensure that the management objectives and requirements of both agencies are met. Wherever possible, the two agencies will co-operate with logistical arrangements to ensure cost-effective utilization of resources.

The permitting process for access to Banks Island Bird Sanctuary No. 2 will be as follows:

- The regular Parks Canada visitor registration will apply. Parks Canada will provide CWS with an annual summary of the visitor data so that CWS can be kept informed of how much use the sanctuary is receiving (Understanding 3 of the MOU).
- For research, a one permit system (e.g. Parks Canada Research Permit) will be adopted, providing that CWS has the opportunity to review all applications that pertain to the sanctuary.
- Parks Canada will be the first contact for all applications to conduct research in the sanctuary and it is Parks Canada's responsibility to ensure screening by the Environmental Impact Screening Committee.
- If CWS wished to conduct research in the sanctuary pursuant to the *Migratory Birds Convention Act*, CWS may proceed with this research provided that it is not inconsistent with the *National Parks Act* (Understanding 9 of the MOU).

4.3 Cultural Environment

Cultural resources are important aspects of the environment. By gaining a better understanding of the relationships between cultural and natural environments, park managers will enhance their ability to manage park resources.

Cultural resource management within Aulavik will involve the community of Sachs Harbour and the IRC. These resources will be managed in accordance with Parks Canada Cultural Resource Management Policy and this management plan. This policy is based on the principles of value, public benefit, understanding, respect and integrity. It also sets out a practice for cultural resource management as follows:

1. Inventory; the park's cultural resources should be inventoried for initial consideration of value. An Archaeology Custody Agreement between Parks Canada and the IRC will be developed, in accordance with the ANPEA (5.06) which will direct the care and guardianship of archaeological resources from Aulavik.
2. Evaluation; the resources should be evaluated for their heritage values, including vulnerability to threats, scientific and interpretive potential and local values.

3. Decision making; the historic value of all cultural resources and actions affecting them should be considered in all park management actions, including development of park management plans.

4. Monitoring; relates to both site monitoring and monitoring of management decisions and actions to ensure that the resources are being managed effectively.

4.3.1 Inventory, Research and Monitoring Program

Cultural research in support of park objectives will be monitored. Inventory of sites in Aulavik is underway, with 186 archaeological sites assessed in the park. This inventory should be completed as a priority. An oral history has been completed for Aulavik/Sachs Harbour which will comprise a major part of this inventory. A memorandum of understanding will be developed between Parks Canada and appropriate Inuvialuit representation regarding future research on traditional knowledge and oral histories.

Priority for research should be given to areas that are most sensitive to human and natural impacts, or those sites which are identified as Culturally Sensitive Areas (see 6.0- Zoning). On this basis, priority will be given to the following areas:

- the Thomsen River watercourse as an area in the park with the highest potential for visitor use; and
- the site of the *Investigator*, Head Hill and the Nasogaluak archaeological complex, as Culturally Sensitive Areas.

In addition:

- Cooperation between Parks Canada and other researchers and agencies in cultural research will be encouraged.
- Priority will be given to research that is supported by neighbouring communities and is integrated regionally.
- Community-based cultural research, including oral histories and traditional knowledge research, will be supported.
- Cooperation with community cultural agencies in the interpretation and presentation of findings to visitors, residents and the public will be encouraged.

4.3.2 Inuvialuit History, Culture and Involvement

The cultural environment of Aulavik encompasses a range of cultural resources, cultural activities, and ongoing Inuvialuit use of the land. Within the cultural environment are archaeological and historical sites, Inuvialuit knowledge of the land and its history, and the continuing ties between Inuvialuit and Banks Island. Inuvialuit oral histories and traditional knowledge are an important cultural component of the park, and will help to guide park management. There are Inuvialuit names for many special places, plants and animals. These names should be documented and used in park material wherever possible. By their actions, park managers will promote respect for Inuvialuit culture, language and traditions, both past and present.

- The importance of Inuvialuit culture, present day Inuvialuit use, and historic resources will be recognized.
- Inuvialuit communities, particularly Sachs Harbour, as well as elders and organizations, will be consulted to ensure Inuvialuit participation in cultural resource management, the use of Inuvialuktun (the Inuvialuit language) and cultural information in park management and interpretive messages.

5.0

VISITOR MANAGEMENT AND PARK PRESENTATION

Aulavik offers an outstanding Arctic wilderness experience and opportunity to learn about this environment. Features of the park which are particularly notable are:

- vast, pristine tundra landscapes;
- abundant wildlife, particularly muskoxen;
- the Thomsen River canoeing experience;
- solitude and remoteness;
- Inuit cultural heritage; and
- ease of hiking and navigation when compared to other northern parks offering similar remote wilderness adventure.

Visitors have a high expectation of experiencing these features in an unobtrusive way. Management of Aulavik will reflect the park's opportunities and expectations and remote, isolated wilderness adventure. Visitors are required to exercise the hallmarks of wilderness recreation: self-sufficiency, self-reliance, and no-trace user techniques.

Visitation is presently concentrated along the Thomsen River. Canoeing is the primary activity. Hikers also use the park, although there are no routes prescribed as yet for the park.

Over the past three years, the number of visitors to Aulavik has ranged up to 20 visitors per year, with cruise ships increasing the level to approximately 100 visitors per visit in one day. The park is in its infancy and it is difficult to predict future visitor patterns. Instead of speculating on future types of use, park managers will use an adaptive approach in facilitating the Aulavik wilderness experience. The visitor guidelines identified in 5.1 will provide a basis for management in this context. Although people are encouraged to experience Aulavik, use limits may be required to protect the natural and cultural environment and ensure the high quality of wilderness experience.

A visitor market analysis for Aulavik has been completed to help determine the type and level of appropriate uses and facilities to be provided in the park. The analysis was carried out by Parks Canada in consultation with the co-management bodies identified in the ANPEA (6.11). Until it is reviewed there will be no visitor facility development in the park and only multi-day visitation will be encouraged.

Both the ANPEA provision stating that, "The Park shall be operated and managed to protect the natural character of the Park and the Park's wildlife populations and their habitat..." (Section 3.03), and the views expressed by visitors and other members of the public strongly indicate that development of visitor facilities, if any, must proceed carefully.

Aulavik has an equally important role in educating and inspiring members of the broad Canadian public who are unlikely ever to visit the park. Key messages are the importance of this environment, the need for its protection, and the park's role in the family of Canadian national parks and global environmental protection.

Section 6.06 of the ANPEA provides guidance for promotion of public awareness as follows:

"Through the distribution of information to the Canadian public, and the use of Park interpretation programs, the Parties agree to promote public awareness, appreciation and understanding of all aspects of the land within and adjacent to the Park, its past and present use, and in particular, the related cultural heritage of the Inuvialuit."

A park interpretive display for both the visitors to Aulavik and Sachs Harbour residents is presently being developed at the Aulavik National Park office in Sachs Harbour.

Sachs Harbour

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5.1 Visitor Guidelines

Section 6.04 of the ANPEA provides guidance in visitor management:

"In the ongoing planning administration ...particular emphasis shall be placed on the timing, location and means of Visitor access, in the interests of both Visitor safety and of protection of the Natural and Cultural Resources of the Park."

In addition to this direction, the following guidelines will apply to visitor management:

- All park visitors will be required to be self sufficient and use no-trace camping techniques.
- All park visitors must be self-reliant.
- Because natural fuel is scarce in the park, visitors will not be allowed to collect wood or other vegetation for fires, or for burning garbage. Only camp stoves will be allowed.
- Natural and cultural resources and wilderness experiences along the Thomsen River will be protected by closely monitoring use levels and impacts, and managing the numbers and schedules of travellers.
- A variety of direct and indirect strategies will be used for managing public use such as limiting access, controlling group sizes, scheduling and education to ensure protection of the natural and cultural environment and to ensure the opportunity for an outstanding wilderness experience.
- If necessary, strategies will be developed to ensure that visitors' activities do not impact on traditional users.

- Information relating to visitor impacts on ecosystems and cultural resources will be gathered and applied in decision making.

- No in-park visitor facilities, either Parks Canada or commercial, will be established (if any) until the visitor market analysis has been reviewed, as required by the ANPEA (6.11).

- Because of the intensity of visitor use associated with cruise ship visitation, a Parks Canada employee will be on site for all cruise ships visiting the park. The costs associated with ensuring the presence of a Parks Canada employee will be borne by the company chartering the cruise ship.

5.2 Waste Management

In a fragile Arctic environment, the control and management of garbage and human waste requires special consideration. It is expected that over time a small, yet potentially significant number of visitors will travel to Aulavik. Most of this use will be concentrated along the Thomsen River. Visitor use and regular park management activities such as research and general operations have the potential to create impacts on water quality, damage aquatic ecosystems, attract wildlife and degrade visitor experiences. Parks Canada will establish stringent codes of practice and visitor use guidelines to ensure that wastes are collected and disposed of in a manner that is both environmentally suitable and responsible.

To achieve this, the following waste management guidelines will be applied to visitor use in Aulavik:

- A pack-in, pack-out policy for garbage will apply to all visitors, including researchers and park staff.

- For the time being, visitors will be allowed to dispose of human waste in the park. As methods of disposal of human waste in the Arctic can differ from more southern climates and environments, information will be available to all visitors when they register. Through careful monitoring of use along the Thomsen River, it should be evident if this policy is effective or not. Depending on levels of use, and results of ongoing monitoring, it may be necessary in the future to implement a removal policy for human waste.

- Research activities or regular park operations may require that base camps be set up for periods of up to one or more months. In situations such as these, human waste will be collected and stored for removal from the park when that project is completed.

- Grey water can be defined as waste water resulting from food preparation, dish cleaning and laundry. Disposal methods for grey water can vary, and guidelines designed to inform visitors as to appropriate disposal will be prepared. The information will be given to visitors during the registration process.

5.3 Air Access

Visitor access to Aulavik is generally by aircraft. Aircraft access guidelines for the park are required to direct access to areas capable of sustaining visitation while minimizing potential impacts on wildlife and the wilderness experience of other visitors.

- Park managers will work with charter and scheduled air service companies to develop altitude and operating guidelines. These guidelines may include recommended flying altitudes and routes to minimize impacts on wildlife and visitors, as well as temporal and overflight restrictions to protect critical wildlife habitats at certain times of year.

- No airstrips will be constructed, developed or serviced in the park. Landings are at pilot's discretion at all approved, designated landing areas in the park (see Appendix A - Glossary for definition of "designated landing area").
- All landings require a landing permit issued by Parks Canada.
- A minimum of 300 metres is required for flights over the Banks Island Migratory Bird Sanctuary No. 2.
- Air access applications to other sites in the park will be considered in support of multi-day, no-trace activities that encourage appreciation and understanding of the wilderness environment. Requests for access will be scrutinized carefully for potential impacts on the natural and cultural environment and on visitor wilderness experience.
- Float plane access will be assessed on a case by case basis. The designation of a permanent float plane landing site will be assessed on the basis of level of demand, impacts etc.

The following areas are identified for air access (see Map II - Aulavik National Park):

- Nangmagvik Lake (Polar Bear cabin)
- Castel Bay
- South boundary
- Green cabin

5.4 Outfitting and Guiding

The ANPEA states that, to the extent that the management regime of Aulavik National Park provides for economic activities, opportunities should be provided to Inuvialuit on a preferred or priority basis.

As with all national parks, all guides and operators will be required to adhere to Parks Canada standards and regulations, as authorized by *National Parks Businesses Regulations*. Appendix D summarizes the general requirements. A memorandum of understanding will be developed between Parks Canada, Sachs Harbour Hunters and Trappers Committee and Inuvialuit Regional Corporation to define specific outfitting and guiding requirements.

- Park managers will work with the community of Sachs Harbour to create awareness about the opportunities that exist for guiding and outfitting in Aulavik National Park.
- Public information meetings will be held, primarily in Sachs Harbour and also Inuvik, to create awareness of the guiding and outfitting opportunities that exist in Aulavik, as well as applicable standards.
- When acting in the capacity of guides for park visitors, or when hired as guides by park visitors or by other guides to provide firearm protection, Inuvialuit shall be permitted to carry and discharge firearms for visitor protection (ANPEA, 6.12).

5.5 Park Presentation

In support of the development of this management plan, a framework for a marketing and tourism strategy was prepared (1996, Parks Canada). This framework sets out a course of action for developing a detailed strategy for client based presentation of the park and development of its tourism potential. The framework recommends two areas of action:

1. Development of a public education strategy to deliver key messages to the Canadian public who are unlikely to ever visit the park, but can benefit through vicarious education and enjoyment.
2. Development of a marketing strategy targeted at current and potential visiting clients, tourism operators, and the broad global tourism industry.

The following actions will be pursued for park presentation:

- A marketing strategy based on the framework described above will be completed and implemented. It will be coordinated with the marketing efforts for other parks and national historic sites in the Western Arctic.
- Interpretive themes and messages will be developed for use in public communications.

5.6 Education

Aulavik and other national parks can be important teaching and learning opportunities for K-12 students in the ISR. Parks as a subject can provide the basis for topics such as the need for protected areas, traditional knowledge, economic benefits and career opportunities, land use history and environmental stewardship.

- Inuvialuit education authorities in conjunction with Parks Canada, will explore the inclusion of Aulavik and other national parks in the ISR on the curriculum in local schools.
- Inuvialuit education authorities in conjunction with Parks Canada, will follow up on the success of the organized field trip to Aulavik for students at the Sachs Harbour school that was held in 1996. The costs and logistics of a three year cycle for park field trips will be evaluated.

6.0 ZONING

6.1 Zoning in National Parks

The national parks zoning system is an integrated approach by which land and water areas are classified according to ecosystem and cultural resource protection requirements, and their capability and suitability to provide opportunities for visitor experiences. Management plans map national parks into zones that strike a balance between the capability of areas to sustain use and their need for protection.

Parks Canada's zoning system for national parks consists of five zones:

Zone I, Special Preservation, is for areas where public use may be controlled to protect especially important or fragile resources. No motorized access is permitted, including visitor air access.

Zone II, Wilderness, is for large areas that are good representations of the ecosystems of the park and will be maintained in a wilderness state. Motorized use is not permitted, although strictly controlled air access to remote areas may be permitted.

Zone III, Natural Environment, is for areas that are maintained in a natural state, although allowing for more use than Zone II Wilderness. Zone III allows for limited motorized access, usually by public transport.

Zone IV, Outdoor Recreation, is for areas capable of accommodating a broad range of opportunities for education, outdoor recreation and related facilities for visitor enjoyment, in ways that respect the natural landscape and the park environment. Motorized access is permitted.

Zone V, Park Services, is for park communities such as Banff and Jasper and major service or park administration centres.

In addition to the five zoning designations, Parks Canada policy provides for the designation of Culturally and Environmentally Sensitive Areas to complement the zoning system. These designations can be applied to areas which may require special recognition or management not provided through zoning designation. Park management plans may designate Culturally or Environmentally Sensitive Areas in any zone. Sensitive Area designation is useful for focusing and communicating objectives for research, protection and visitor experience for particular areas.

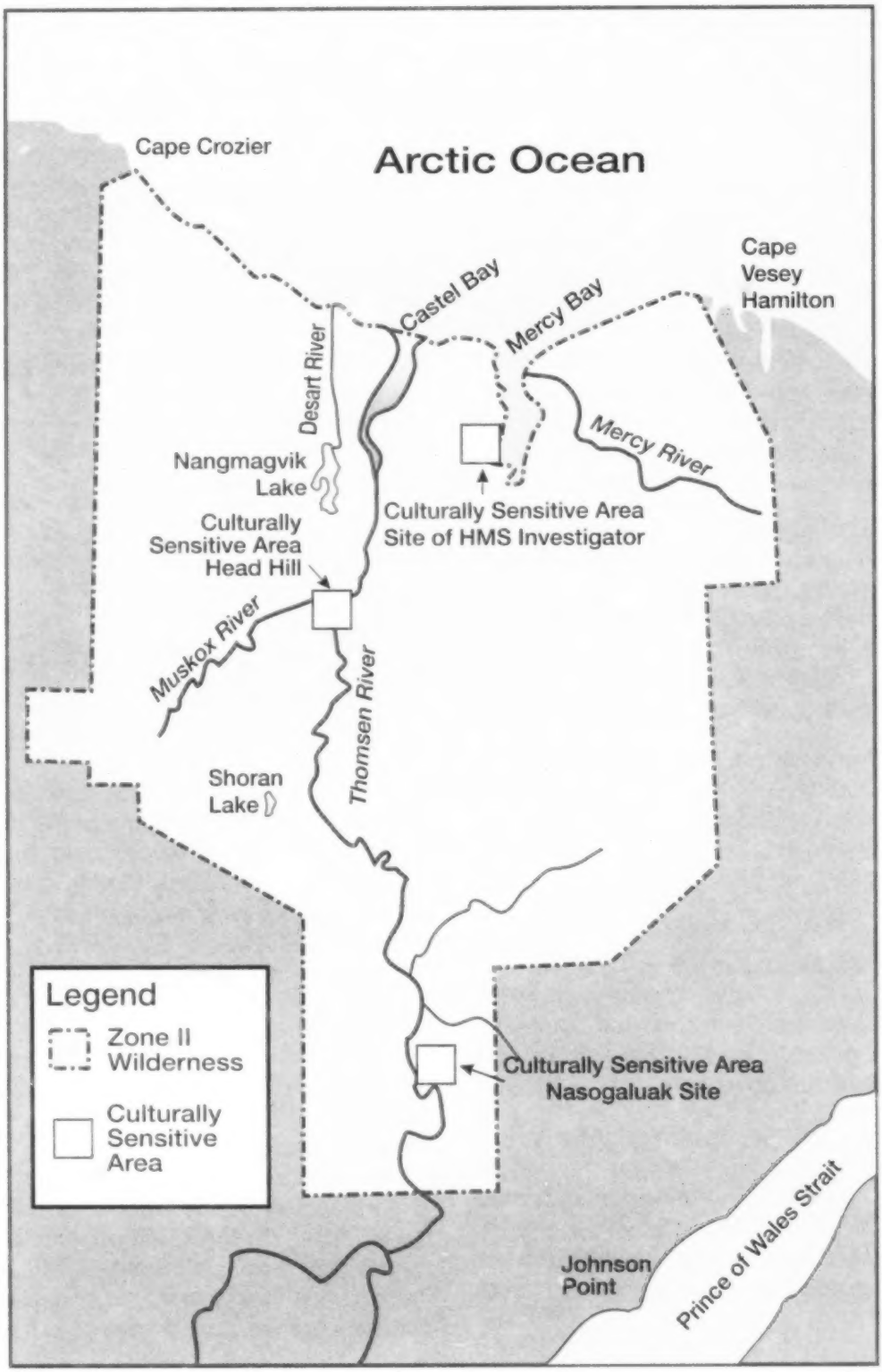
Consultation on the designation of zoning shall occur according to the IFA, the ANPEA and the *National Parks Act.*

6.2 Zoning in Aulavik National Park

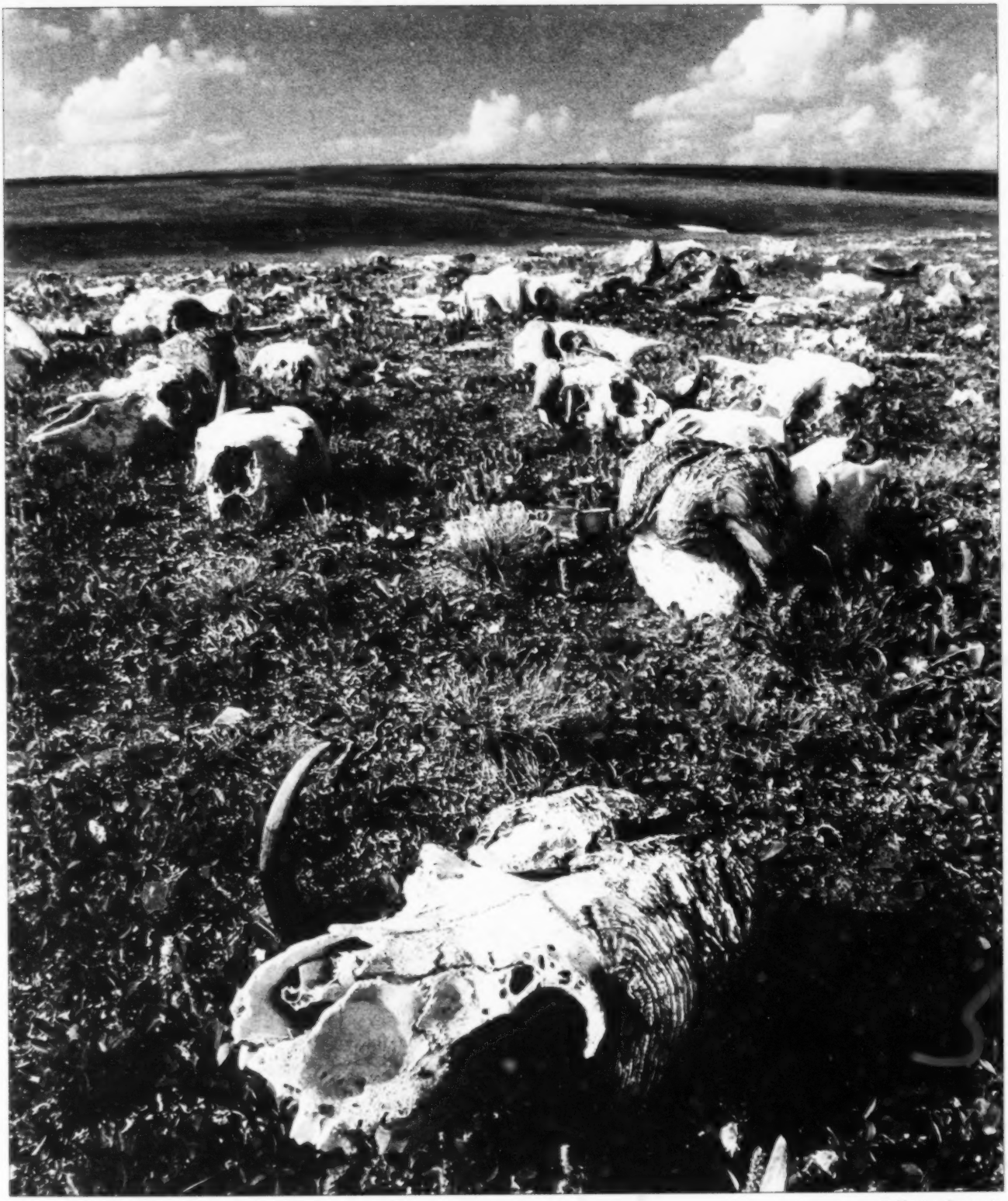
Section 3.03 of the ANPEA provides guidance in the establishment of Aulavik's zoning system:

"The park shall be operated and managed to protect the natural character of the park and the park's wildlife populations and their habitat, pursuant to the terms of the National Parks Act. To this end, the park shall contain a predominant proportion of Zone 1 - Special Preservation and Zone II - Wilderness."

In this management plan, Zone II Wilderness and Zone III Natural Environment are established. Delineation of Zone III Natural Environment is set out in 6.3. In time, more complete natural and cultural resource inventory work will provide managers with a more comprehensive understanding of the Aulavik ecosystems and landscapes. In the future, it may be possible to identify and delineate areas of special importance that warrant consideration for classification as Zone I - Special Preservation.



Map 3 - Park Zoning



Muskoxen skulls at harvest site

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Zone II - Wilderness

This designation will be applied to all areas of the park. Wilderness zoning will guide wilderness use to ensure that it is low density, dispersed and unobtrusive. In addition, assurance will be provided that service and facility development will be minimal, primitive and appropriate to a wilderness experience. Classification of the park as Zone II - Wilderness reflects the park vision, establishment and management objectives, and the ANPEA.

Culturally Sensitive Areas

Within the Zone II - Wilderness, three specific areas will be designated as Culturally Sensitive Areas:

1. Head Hill Site: This complex encompasses about 8 sq. km. on the north side of the Muskox River, west of the confluence of the Thomsen and Muskox rivers. There are at least nine muskox kill sites, 17 structures, and 543 muskox skulls.

   The management objective is to protect the site's integrity as a significant cultural resource, while presenting aspects of muskox hunting and lifestyles of inhabitants of the area over the last 500 years. Controlled public access is allowed. On-site and off-site information will be provided to visitors informing them of the site's values and sensitivity. An intensive, site-specific monitoring program should be established.

2. Nasogaluak Site: The Nasogaluak site is a large pre-contact campsite on the Thomsen River representing Inuitnait use (1851 - 1890) and possibly the Mackenzie Inuit period (1450 - 1890). It is predominated by more than 40 caches, some of which have obvious features visible from the river. There are several semi subterranean houses, tent rings, a windbreak, surface artifacts and bone. Its position on a terrace overlooking the Thomsen River makes it highly visible and a potential stopping spot for visitors. The management objective is to protect the site's integrity as a significant cultural resource, while presenting aspects of the lifestyles of inhabitants of the area over the last 500 years. Controlled public access is allowed. An intensive, site-specific monitoring program should be established.

3. *HMS Investigator* Site: Located on the western shore of Mercy Bay, represents the overwintering site of Robert M'Clure and the crew of the *Investigator*. This consists of a series of caches, refuse, articles from the ship *Investigator*, and activity areas associated with the overwintering of the ship. It is spread out over approximately two sq. km.

   The management objective is to protect the site's integrity while presenting an important site in two major themes in Arctic history, the search for the Northwest Passage and the search for the lost Franklin expedition. Off site, remote interpretation is warranted. An intensive, site-specific monitoring program should be established.

6.3 Guided Over-Snow Vehicle Touring

Although not currently an activity in the park, commercially guided over-snow vehicle tours to Aulavik have been proposed. Under Zone II - Wilderness, this type of activity would not be permitted. However, there is considerable interest amongst the community of Sachs Harbour in developing commercially guided over-snow vehicle tours in the park. While normally not permitted in national parks, over-snow vehicle touring can contribute to the Parks Canada objective of maximizing the long-term social and economic benefits of Aulavik while protecting natural and cultural resources. Commercially guided over-snow vehicle touring is therefore permitted in Aulavik, subject to several conditions and environmental assessment as detailed below.

To accommodate guided over-snow vehicle touring, areas identified in accepted proposals will be identified as Zone III - Natural Environment, which permits motorized use. Identification of Zone III areas can occur only after proposals have undergone required environmental impact assessments, are mutually agreed to by Parks Canada and Inuvialuit representatives, and meet several criteria as detailed below. Zone III areas will be identified in detailed maps showing location, and will be appended to and become part of this management plan.

The following principles, guidelines and conditions must be met before rezoning can take place:

- Zone III areas will be determined in accordance with ANPEA section 3.03 and through appropriate processes;
- all requirements of Zone II, with the exception of those prohibiting over-snow vehicle touring, apply to Zone III areas;
- the company proposing the activity is an Inuvialuit firm;
- the company possesses a valid Parks Canada business licence, and the guides are licenced as national park guides (see Appendix D);
- the geographical location of authorized over-snow vehicle access and activities are clearly specified (in addition to controlling access points, this would help to limit potential impacts to archaeological sites, vegetation and wildlife);
- the season and duration of use are clearly specified so as to have the least possible impact on wildlife populations;
- each trip by a licenced outfitter is individually screened;
- proposals demonstrate that they relate to, or would offer, a reasonable visitor experience in keeping with national park values;
- no traditional harvesting activities would be permitted while an outfitter is engaged in a commercial activity;
- outfitters possess appropriate insurance; and
- failure to comply with the regulations governing commercial over-snow vehicle activities may result in that outfitter being banned from engaging in such activities in the future. Such action would require a review and mutual agreement by Parks Canada and the IRC.

7.0
ECONOMIC BENEFITS

Section 7.03 and Article 8 of the ANPEA provides specific guidelines for economic benefits related to the park:

- Inuvialuit who meet or exceed the qualifications stipulated in any competition for public sector positions within the park shall be considered on a priority basis for recruitment to those positions.
- Qualified Inuvialuit businesses, particularly those in Sachs Harbour, shall be given first consideration in instances when a government contract related to the park may be awarded without competition.
- Inuvialuit have the first priority to apply for and acquire a business licence to carry on a business similar to that proposed by non-Inuvialuit operators.

In addition to the direction provided by these guidelines:

- An employment and training strategy in support of these ANPEA guidelines, will be developed and implemented to assist Inuvialuit in gaining qualifications needed to compete for public sector positions related to the operations of the park.
- The use of Inuvialuit businesses by tourists will be encouraged.
- A memorandum of understanding will be developed between Parks Canada and IRC addressing economic benefits resulting from approved, non-Inuvialuit tour operators operating in the park.

Sachs Harbour residents

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8.0

REGIONAL INTEGRATION

8.1 Principles of Regional Integration

Aulavik is an important component of cultural resource and ecosystem management in the NWT and the Inuvialuit Settlement Region. Only by developing cooperative liaisons and partnership activities can effective management and protection of park resources be achieved.

Aulavik was established under the ANPEA in a manner that committed park management to be carried out within a framework of cooperative management and regional coordination. Several sections of the ANPEA and the IFA relate to the need for cooperation and coordination. In the IFA, section 14(2) states, *"to achieve effective protection of the ecosystems in the Inuvialuit Settlement Region, there should be an integrated wildlife and land management regime". Section 14(39) further states, "Canada undertakes to ensure that wildlife management and habitat management produce an integrated result with respect to migratory species within the Yukon Territory, the Northwest Territories and the adjacent off-shore."*

Section 6.03 of the ANPEA states:

"Within five years of the signing of this agreement, the Canadian Parks Service, in consultation with the Sachs Harbor Hunters and Trappers Committee, the Inuvialuit Game Council, The Inuvialuit Regional Corporation, the Wildlife Management Advisory Committee (NWT), and the broader Canadian Public, shall develop a management plan for the park which shall comply with the provisions of this Agreement, the National Parks Act *and Parks Canada Policy."*

Parks Canada program policy encourages collaboration with others who share common goals and objectives. Conservation areas cannot be managed in isolation from the regions in which they are situated. Park managers will seek to integrate its programs with the surrounding landscapes, ecosystems, regions and communities to encourage the achievement of mutually supportive environmental, conservation, social and cultural objectives. Multi-jurisdictional agreements such as the Zone E Polar Bear agreement will also be recognized in park management.

8.2 Inter-agency Cooperation

The IFA mandated the creation of several advisory bodies with equal numbers of Inuvialuit and government members. Together these joint bodies, also known as co-management bodies, coordinate environmental research and management within the Inuvialuit Settlement Region (ISR). These include: the Wildlife Management Advisory Council, Northwest Territories (WMAC(NWT)), the Fisheries Joint Management Committee (FJMC), the Environmental Impact Screening Committee (EISC) and the Environmental Impact Review Board (EIRB). These bodies are served by a joint secretariat in Inuvik. Parks Canada shall participate in regional ecosystem management through the co-management process by working with these bodies. Appendix B describes the mandates and relationship of these bodies.

- Parks Canada shall work through the Wildlife Management Advisory Council (NWT) and directly with the Inuvialuit Game Council, the Fisheries Joint Management Committee, Hunters and Trappers Committees, the Government of the Northwest Territories, the Canadian Wildlife Service and other federal government departments as required, to coordinate research, ecosystem management, interpretation, regional tourism, wildlife management and other matters of mutual interest.
- Representing other Inuvialuit interests are the Community Corporations and the Inuvialuit Regional Corporation. Elders committees in each community provide guidance on some issues. The Inuvialuit Social Development Program works with social concerns including the maintenance of traditional practices and perspectives.

9.0 ADMINISTRATION

9.1 Aulavik National Park Office

Aulavik National Park operations will be administered through the Aulavik National Park office in Sachs Harbor and the Western Arctic District Office in Inuvik. Implementation of this plan can be achieved without significant increase in operating or capital expenditures.

9.2 Staff

- Parks Canada will hire and develop staff so that the predominant number of staff for Aulavik National Park will be Inuvialuit. To achieve this, recruiting strategies and training programs will be implemented.

9.3 Park Cabins

- A memorandum of understanding will be developed between Parks Canada, Sachs Harbour Hunters and Trappers Committee and GNWT-DRWED regarding the ownership, as presently legally defined, and use of the Polar Bear cabin.

- A memorandum of understanding will be developed between Parks Canada, Sachs Harbour Hunters and Trappers Committee regarding the ownership, as presently legally defined, and use of the Green cabin.

10.0

ANNUAL REVIEW

The implementation of this plan will be monitored by an annual review which will take the place of the planning committee which led the development of the plan. The annual review will have representation by Parks Canada, SHHTC, Sachs Harbour Elders Committee, Sachs Harbour Community Corporation, CWS, Government of Northwest Territories, IRC, and Inuvialuit Game Council (IGC). It will review the previous year's progress in implementing the plan, set new priorities, and produce a brief status report. The annual review will be held in October or November of each year to link with the Parks Canada business planning cycle. It will contribute directly to a five year State ot the Park Report.

11.0

IMPACT ASSESSMENT

11.1 Environmental Assessment Process

The recommendations of this management plan have been assessed for potential environmental impacts and mitigation requirements by Parks Canada as required by Cabinet Directive. A screening report is available upon request from Parks Canada.

The management plan has also been reviewed by the Environmental Impact Screening Committee according to the Environmental Impact Screening and Review Process as described in section 11 of the IFA.

11.2 Decision Statements

The Aulavik National Park Draft Management Plan (Parks Canada, 1997) was subjected to an environmental assessment pursuant to the Cabinet Directive, "The Environmental Assessment Process for Policy and Program Proposals" (Federal Environmental Assessment and Review Office, 1993). The environmental assessment was conducted during the final draft stages of the management planning program to ensure that the environmental effects of the initiatives contained in the plan were fully considered before irrevocable decisions had been taken. The analysis of environmental effects included a consideration of natural, cultural and socio-economic effects.

The environmental assessment focussed on three major initiatives within the Draft Management Plan that could result in environmental effects. These initiatives have been described in detail in the Management Plan, and have been briefly described within this report. The three initiatives which were subject to environmental assessment included scientific research and monitoring, cultural resource management and visitation. These initiatives will be subject to a more detailed environmental assessment as the proposals evolve from concept to design and implementation. The environmental effects from the three initiatives can be mitigated to insignificance by following established procedures and by implementing appropriate mitigative measures. The initiatives will therefore not result in any significant environmental effects to natural or cultural resources within Aulavik National Park.

The three initiatives were also assessed for cumulative environmental effects. The cumulative environmental effects from the combined initiatives within the *Aulavik National Park Draft Management Plan* (1997) can be monitored to ensure that the effects remain insignificant, or that mitigation can be implemented to prevent or reverse effects exceeding limits of acceptable change.

The Environmental Impact Screening Committee decided that, based on the information provided, the operation of Aulavik National Park in the manner described in the Management Plan will have no significant negative impact on the environment or Inuvialuit harvesting in the Inuvialuit Settlement Region [IFA section 11.(13)(a)].

11.3 Socio-Economic Statement

Parks Canada is committed to sustainable use, seeking to maximize the long-term social and economic benefits of national parks while protecting their natural and cultural integrity. To ensure that social and economic issues are assessed in the preparation of management plans for national parks, provision has been made for socio-economic input to be included in the management planning process.

The operation of Aulavik will provide a number of long-term jobs to the Inuvialuit Settlement Region. Parks Canada has been providing and will continue to provide training to Inuvialuit staff, which will better their chances for future employment. In addition to direct employment, operation of the park will result in expenditures in the region that are important to local economies.

The park will attract a growing number of tourists to the region. Residents of Sachs Harbour will have the opportunity to benefit economically through providing tourist services. The most important services will be guiding, outfitting and air charter.

The park has a social role in continuing to support the connection between the Inuvialuit and the land of Aulavik. Through recognition of Inuvialuit traditional knowledge about the park area, having predominantly Inuvialuit staff, and a community-based interpretation program, Aulavik will have a role in encouraging all people to continue to respect and value the land.

Mercy River Falls

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APPENDICES

Appendix A - Definition of Terms

ANPEA: "An Agreement for the Establishment of a National Park on Banks Island."

benchmark: a point of reference for measurement.

conservation: the management of wildlife populations and habitat to ensure the maintenance of the quality, including the long term optimum productivity, of these resources and to ensure the efficient utilization of the available harvest (IFA definition).

CWS: Canadian Wildlife Service.

designated landing area: a natural, unimproved area of the park identified by the park management plan where, under a valid permit issued by the superintendent, an aircraft (fixed or rotary wing) may land. No physical improvements have been, or will be made to designated landing areas. In the case of fixed-wing aircraft, a designated landing area allows access to short take-off and landing (STOL) aircraft equipped with "tundra" tires. All landings are at the pilot's discretion. Designated landing areas are not maintained in any way.

EISC: Environmental Impact Screening Committee.

ecological integrity: a condition where the structure and function of an ecosystem are unimpaired by human-caused stresses and are likely to persist. A more technical definition would be: a state of ecosystem development that is optimized for its geographic location. For parks and protected areas, this optimal state has been referred to by such terms as natural, naturally evolving, pristine, and untouched. It implies that ecosystem structures and functions are unimpaired by human-caused stresses, that native species are present at viable population levels and that, within successional limits, the system is likely to persist. Ecosystems with integrity do not exhibit the trends associated with stressed ecosystems. Parks and protected areas are part of larger ecosystems and determinations of integrity in national parks must consider these larger systems.

ecosystem: group of organisms and its accompanying cycles, processes, structures and energy flows. Ecosystems are systems of interacting organisms and species, including humans, and their non-biological environments. For example a tundra ecosystem is made up of muskoxen, wolves, lemmings, people, lichens, mosses, shrubs, grasses, cold dark winters, rivers, rain and snow and wind, soil and permafrost. It also includes the relationships, such as muskoxen eating lichen, wolves eating caribou, people hunting wolves and muskoxen, lemmings digging in the ground, and wind-blown snow blasting the shrubs.

FJMC: Fisheries Joint Management Committee.

GNWT: Government of the Northwest Territories.

GNWT-DRWED: Government of the Northwest Territories - Department of Resources, Wildlife and Economic Development.

Inuvialuit Final Agreement: the agreement which settled the Western Arctic Land Claim of the Inuvialuit, originally brought forward by the Committee for Original Peoples Entitlement. Also referred to as the IFA.

Inuvialuit Settlement Region: the area of the western Arctic that is under the jurisdiction of the IFA.

in situ: in the original location. For example, in situ cultural artifacts means that the artifacts have not been removed from the location of their discovery.

IFA: Inuvialuit Final Agreement.

IGC: Inuvialuit Game Council.

IRC: Inuvialuit Regional Corporation.

ISR: Inuvialuit Settlement Region.

monitoring: is an effort that:

a) provides repeatable ecological measurements that influence natural resource management decisions, or

b) monitors either long term changes in regional ecosystems or specific threats to those ecosystems.

SHHTC: Sachs Harbour Hunters and Trappers Committee.

SHCC: Sachs Harbour Community Corporation.

subsistence usage: the taking of wildlife by Inuvialuit for their personal use for food and clothing, including the taking of wildlife for the purpose of trade or barter (IFA definition).

traditional knowledge: knowledge that comes from, or is rooted in the traditional way of life of people. Traditional knowledge is the accumulated knowledge and understanding of the human place in relation to the universe. This encompasses spiritual relationships with the natural environment and the use of natural resources, relationships between people, and is reflected in language, social organization, values, institutions, and laws.

WMAC-NWT: Wildlife Management Advisory Council (NWT).

Appendix B - Linkages Between Aulavik National Park and Co-management Partners

Community Links

* Sachs Harbour Hunters Trappers Committee
* Sachs Harbour Community Corporation
* Sachs Harbour Elders Council
* Sachs Harbour District Education Authority
* Hamlet of Sachs Harbour

Cultural Resource Management Links

* Sachs Harbour Community Corporation
* Inuvialuit Social Development Program
* Inuvialuit Regional Corporation
* Environmental Impact Screening Committee
* Sachs Harbour Elders Council

Natural Resource Management Links

* Sachs Harbour Hunters & Trappers Committee
* Inuvialuit Game Council
* Fisheries Joint Management Committee
* Wildlife Management Advisory Council (NWT)
* Canadian Wildlife Service
* Department of Resources Wildlife and Economic Development - GNWT
* Environmental Impact Screening Committee
* Environmental Impact Review Board

Economic Development Links

* Department of Resources, Wildlife and Economic Development - GNWT
* Inuvialuit Development Corporation
* Sachs Harbour Community Corporation
* Sachs Harbour Hunters & Trappers Committee
* Hamlet of Sachs Harbour
* Inuvialuit Regional Corporation
* Environmental Impact Screening Committee

Appendix C - Memorandum of Understanding Concerning the Administration of Bird Sanctuaries Within National Parks

Preamble

Canada proposes to create national parks in the northern Baffin/Bylot Islands region and on Banks Island. The proposals include the Bylot Island Bird Sanctuary and the Banks Island Bird Sanctuary Number 2.

The Parties

The Canadian Wildlife Service of Environment Canada - Conservation and Protection (CWS) is responsible for Bird Sanctuaries under the authority of the Migratory Birds Convention Act.

The Canadian Parks Service of Environment Canada (CPS) is responsible for National Parks under the authority of the National Parks Act.

Purpose

The purpose of this Memorandum of Understanding is to confirm the basis on which the Parties agree to co-operate in the operation and management of Bird Sanctuaries and National Parks in northern Canada, where they coincide in whole or in part.

Understandings

1. The Parties share common goals of conservation and protection of natural resources.
2. Both Parties may participate in consultations and negotiations which concern the National Parks or the Bird Sanctuaries.
3. The Parties will co-operate in wildlife research and management affecting the Bird Sanctuaries or the National Parks, including preparation of park management plans, and sanctuary management plans. The Parties will meet at least annually to enhance inter-Service co-ordination.
4. Each party will invite the other party to undertake wildlife research which it cannot carry out using its own staff.
5. The appropriate contact for all matters concerning the Bird Sanctuaries is the Northern Operations Manager, CWS, Yellowknife, or his designate.
6. The appropriate contact for all matters concerning the National Parks is the Northern Parks Advisor, CPS, Yellowknife, or his designate. When a Superintendent or field manager is appointed by CPS, that person will be the appropriate contact.
7. The park wardens will be ex officio under the Migratory Birds Convention Act. CWS will provide any necessary specialized training for such officers.
8. Each Bird Sanctuary will be managed as part of the National Park, in accordance with its requirements as a Bird Sanctuary. Management within each Bird Sanctuary will be in accordance with a sanctuary management plan, which will be incorporated into the park management plan.
9. The Parties agree that the park management plans will allow for actions to be taken within the bird sanctuaries, when required pursuant to the Migratory Birds Convention Act and not inconsistent with the National Parks Act, to maintain or enhance critical habitats or population levels of migratory birds.
10. The Parties will co-operate in any submissions for new resources related to the establishment and integrated resource management of the National Parks and Bird Sanctuaries.

11. The Parties will co-operate in interpretation programs for the Bird Sanctuaries and the National Parks.

12. Each Party is responsible for the administration of its respective mandate.

13. This MOU may be reviewed at the time of any change in the status of the lands in question, at the times of review of the park management plan, or the sanctuary management plan, or otherwise as the Parties agree.

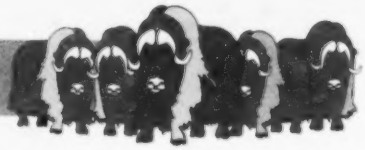
Signed this 1st day of
May 1992 at Hull, Quebec.

(Original signed by
D.L. Egar)

Assistant Deputy Minister
Conservation and Protection
Environment Canada

(Original signed by
Aimeé Lefebvre-Anglin)

Assistant Deputy Minister
Canadian Parks Service
Environment Canada



Appendix D - Summary of National Park Outfitting and Guiding Requirements

In order for a person to carry on a business in a National Park, they must be the holder of a business licence or an employee of the holder of a business licence.

In the case of outfitting, each outfitting company requires a licence to outfit, and each employee, or guide, requires a separate licence to guide. Guides are only licensed when employed by a licensed outfitter.

Specific processes must be followed in order to apply for a business and outfitting licence. In addition, further specific qualifications are required of individuals who wish to become a guide. For an application to be considered for a National Park business and outfitting licence, the commercial operator must first be licensed by the Government of the Northwest Territories, Department of Resources, Wildlife and Economic Development. A memorandum of understanding to be prepared between Parks Canada, Sachs Harbour Hunters and Trappers Committee and Inuvialuit Regional Corporation will set out specific guide requirements (see 5.4).

Further detailed information is available from Aulavik National Park.

Appendix E - Management of Migratory Bird Sanctuaries in the Inuvialuit Settlement Region

MANAGEMENT OF MIGRATORY BIRD SANCTUARIES IN THE INUVIALUIT SETTLEMENT REGION

(Selected Portions)

Environment Canada
Canadian Wildlife Service
Western and Northern Region
Northern Conservation Branch
Yellowknife, Northwest Territories
December 1992

PART A

INTRODUCTION

Under the Migratory Birds Convention Act, the Canadian Wildlife Service (CWS) is responsible for conserving and managing populations of migratory birds that occur within Canada. Under this Act, CWS administers the Migratory Bird Regulations, which address the harvest and possession of migratory birds, and the Migratory Bird Sanctuary Regulations, which provide for the establishment and management of Migratory Bird Sanctuaries. General regulations pertaining to the management of Migratory Bird Sanctuaries are listed in Appendix A-1.

Migratory Bird Sanctuaries are established to provide long-term protection to migratory bird populations and their key habitats. At the present time (December 1992) there are 17 Migratory Bird Sanctuaries in the Northwest Territories (NWT), five of which occur within the Inuvialuit Settlement Region: Anderson River Delta Bird Sanctuary, Banks Island Bird Sanctuary No. 1, Banks Island Bird Sanctuary No. 2, Cape Parry Bird Sanctuary, and Kendall Island Bird Sanctuary.

The establishment of Migratory Bird Sanctuaries is consistent with the principles of the Inuvialuit Final Agreement (1985), specifically, "to protect and preserve the Arctic Wildlife, environment and biological productivity" (p. 1). CWS will endeavour to ensure that the management of Migratory Bird Sanctuaries is consistent with the Inuvialuit Final Agreement and its underlying conservation principles.

The purpose of this document is to outline the approach used by CWS in managing Migratory Bird Sanctuaries in the Inuvialuit Settlement Region, in particular, and in the NWT generally. Development of a management plan is consistent with Environment Canada's policy on public consultation and is intended to promote dialogue between Environment Canada staff and the public. Open communication between CWS and interest groups contributes to the formulation of effective policies and programs for Migratory Bird Sanctuaries. Preparation of management plans also addresses a recommendation of the Conservation Advisory Committee (Northern Mineral Policy). In its final report (1990), the committee recommended "that the Canadian Wildlife Service complete and distribute to interested parties, management plans for the northern sanctuaries" (p. 7).

MANAGEMENT GOAL OF MIGRATORY BIRD SANCTUARIES

The management goal of Migratory Bird Sanctuaries is to ensure the long-term protection of migratory bird populations and their key habitats. Management practices focus on preventing disturbance to migratory birds, with special emphasis on rare and endangered species, maintaining the ecological integrity of their habitats.

MANAGEMENT OBJECTIVES OF MIGRATORY BIRD SANCTUARIES

The management objectives of a Migratory Bird Sanctuary are:

1. To manage and conserve migratory bird-populations and their natural habitats in a manner consistent with the Migratory Birds Convention Act and the Migratory Bird Sanctuary Regulations;
2. To manage the Sanctuary according to sound ecological principles; and
3. To encourage public awareness of and appreciation for the natural environment of the Sanctuary.

MANAGEMENT POLICIES FOR MIGRATORY BIRD SANCTUARIES

Management Authority

The Management Authority for Migratory Bird Sanctuaries is the Minister of the Environment, represented by the Regional Director, CWS, Western and Northern Region, Edmonton. Migratory Bird Sanctuaries that overlap with Inuvialuit (private) lands (Anderson River Delta, Banks Island No.1 and Cape Parry) will be managed in consultation with the Land Administrator of the Inuvialuit Land Administration, in accordance with the *Inuvialuit Final Agreement*. The reader should consult the metes and bounds contained in the Inuvialuit Final Agreement for the locations of privately owned lands.

Sanctuaries located on federal Crown lands, or within National Parks will be managed in consultation with the Minister of Indian and Northern Affairs, in accordance with the Territorial Lands Act, or the Minister of Parks Canada, in accordance with the National Parks Act.

Wildlife Management

Migratory birds (as defined in Appendix A-2) are managed by the Canadian Wildlife Service. Other wildlife is managed by the Government of the Northwest Territories (Department of Renewable Resources), pursuant to the NWT Wildlife Act, or the Canada Department of Fisheries and Oceans, pursuant to the Fisheries Act, as appropriate, CWS will manage migratory bird populations in consultation with the Wildlife Management Advisory Council (NWT).

Management responsibility for rare and endangered wildlife in the NWT is shared by CWS (pursuant to the Canada Wildlife Act) and the Government of the Northwest Territories. Protection of rare, vulnerable, threatened and endangered species, as defined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), is a management priority. CWS will endeavour to ensure that any initiatives regarding these species are consistent with those of the Territorial Government.

Subsistence Hunting and Trapping

Under the Migratory Bird Sanctuary Regulations, any person who is the holder of, or eligible for, a General Hunting Licence for the Northwest Territories may take fur bearing animals, big game, or marine mammals within a Migratory Bird Sanctuary, in accordance with that licence. Ancillary activities associated with subsistence hunting must not have negative impacts on migratory bird populations or habitats. Provisions in the *Inuvialuit Final Agreement* concerning the harvesting rights of the Inuvialuit in the Inuvialuit Settlement Region apply equally to Migratory Bird Sanctuaries within the Region.

Research

Research that will promote a greater understanding of the natural resources of Migratory Bird Sanctuaries is encouraged. All research proposals will be reviewed by EISC, Parks Canada & CWS to ensure compatibility with conservation objectives and other ongoing research. Appropriate permits are required to conduct research in Migratory Bird Sanctuaries (Appendix A-3).

Recreation

CWS recognizes that recreational activities associated with wildlife viewing and appreciation are a legitimate land use. Their acceptability, however, is a function of the season, location, nature and intensity of such pursuits. Recreational activities will be monitored by CWS and, if necessary, restrictions may be imposed on visitor access.

Restricted Areas

Some migratory birds are particularly sensitive to disturbance at certain times of the year. Thus, it may be necessary to prohibit access to a portion of a Migratory Bird Sanctuary for a specified time, or to place special conditions on Sanctuary Permits to safeguard bird populations. Land-use activities within the following "restricted areas" may be prohibited or strictly controlled.

Significant Natural Features

CWS recognized that Migratory Bird Sanctuaries may contain significant natural features in addition to those that comprise important habitats for migratory birds (e.g., plant communities, geological formations or topographic features). CWS will assist in protecting such natural features from land-use activities by cooperation with the appropriate management authorities.

Public Consultation

The management of Migratory Bird Sanctuaries involves consultation with all interested parties. Public input is a fundamental step in the development and subsequent review of management plans. Comments are welcome at any time, and should be forwarded to:

Northern Conservation Branch
Canadian Wildlife Service
P.O. Box 637
Yellowknife, N.W.T
X1A 2N5

Review of Management Plan

The Management Authority, in consultation with interested parties, will review the Management Plan after five years initially and at ten-year intervals thereafter, and will amend the Plan as required.

PART D
BANKS ISLAND BIRD SANCTUARY NO. 2

Historical Perspective

Archaeological sites on northern Banks Island include two Pre-Dorset sites near the Sanctuary. Evidence at these sites suggest that northern Banks Island was used primarily for muskox hunting. By the 19th century Banks Island may not have had any permanent residents, but the island was within the hunting territory of the copper Inuit from Victoria Island.

The first exploration of the coast of Banks Island by Europeans was conducted in 1851 by James M'Clure. In 1914, Stefansson spent the summer in the vicinity of the Bernard River, where remnants of this camp have been found. He also maintained a base camp at Cape Kellett until 1917. Recent occupation did not begin until 1929 when MacKenzie Delta Inuvialuit families founded the settlement of Sachs Harbour.

Scientific investigations were first conducted in 1906 when Horizon, while exploring for a "polar continent", documented some of the flora and fauna of the western coast of Banks Island. The surveys by T. W. Barry in 1960 documented the importance of western and northern Banks Island as nesting and moulting habitats for Lesser Snow Geese and other waterfowl.

Plans for extensive oil exploration on Banks Island, scheduled for the summer of 1961, prompted CWS to established two Migratory Bird Sanctuaries on Banks Island. Banks Island Sanctuary No.2 was established in 1961 (Order-in-Council P.C. 1961-1617) to protect moulting

concentrations of Lesser Snow Geese along the Thomsen River valley and adjacent wetlands. The Sanctuary encompasses approximately 142 km^2 (Appendix D-1). In 1992 an agreement to established a National Park in north-central Banks Island was signed by the Inuvialuit and the Federal and Territorial governments. When established, Aulavik National Park will encompass the Bird Sanctuary and will necessitate changes in the administration and management of the Sanctuary in order to be consistent with the National Parks Act. The Canadian Wildlife Service, in consultation with the Canadian Parks Service, will prepare a revised management plan for Banks Island Bird Sanctuary No.2 once the National Park has been created.

Natural Setting

Climate and Weather

The climate of northern Banks Island is characterized by short, cool summers, and long, dry winters. The mean annual temperatures is around -16^{0}C. June, July, and August are the only months with mean temperatures above freezing. January and February are the coldest months of the year with average temperatures around -32^{0}C. The average annual precipitation in the Sanctuary is low (87-102mm). The Thomsen River begins to break up in June and by mid-September is frozen until the following spring.

Geography

The north end of Banks Island Bird Sanctuary No.2 is an area of high to moderate relief with elevations rising from sea level to 350 metres. Along the Thomsen River valley the topography is characterized by undulating lowlands, gently rolling hills and a diversity of wetlands, including wet sedge meadows, tundra lakes and ponds, and ice-wedge polygons. A rugged plateau with steep-sided ravines and scarps occurs east of the river valley. The influence of permafrost on the land's surface is evident throughout the area, with vast expanses of patterned ground and other periglacial features.

The flora of the Sanctuary is a mixture of High and Low Arctic species. Polar semi desert and desert communities are dominant, with localized areas of Arctic tundra. The general vegetation pattern comprises lush graminoid meadows in wetlands and other lowlands sites, sparsely vegetated communities (dwarf shrubs, cushion plants and lichens) on uplands, and intermediate communities on the intervening slopes.

Birds

Most of the Sanctuary's 43 regularly occurring species (Appendix D-2) have an affinity for wetlands habitats. The many lakes and ponds along Thomsen River valley provide nesting or feeding habitat for Pacific and Yellow-billed Loons, Glaucous Gulls, Long-tailed Jaegers, Red Phalaropes and other shorebirds. Peregrine Falcons and Rough-legged Hawks nest along the scattered cliff faces overlooking the Thomsen Muskox river. Upland species are present in low numbers and include Lapland Longspur, Horned Lark, Snow Bunting, Bird's Sandpiper, Buff Breasted Sandpiper and Black-bellied Plover.

Lesser Snow Goose

When the Sanctuary was established, up to 25,000 Lesser Snow Geese were reported to have used the Thomsen River valley and Castel Bay area for moulting. Surveys are needed to determine the current importance of these areas to moulting geese. Incidental observations by wildlife researchers suggest that, during the late 1980's, the Thomsen River was not used by Lesser Snow Geese during the moulting period. Geese did not appear in the Thomsen River area until the second half of August, where they used the wet sedge meadow habitats for feeding. Presumably, these birds were from nesting areas within Banks Island Bird Sanctuary No. 1.

Brant

The Sanctuary provides habitat for moulting Brant (subspecies nigricans) from Banks Island,

islands north of Banks Island, and the NWT mainland. The moulting birds concentrate at the lower end of the Thomsen River and in Castel Bay. The number of Brant varies from year to year; up to 5,000 birds have been recorded. Departure from the Sanctuary begins in early to mid-August.

Peregrine Falcon

Peregrine Falcons (subspecies tundrius) have been observed along the Thomsen and Muskox rivers, and two eyries have been reported along the Thomsen River. The tundrius subspecies is listed as vulnerable by COSEWIC (1996). Further field work is required to determine the importance of the Sanctuary to this species.

Appendix A-2. Migratory birds, as defined by the Migratory Birds Convention Act.

Note: this appendix is prepared for purposes of convenience only. The original act and amendments thereto should be consulted for all purposes of interpretation and applying the law.

1. Migratory Game Birds:
   (a) Anatidae or waterfowl, including brant, wild ducks, geese, and swans;
   (b) Gruidae or cranes, including little brown, sandhill, and whooping cranes;
   (c) Rallidae or rails, including coots, gallinules and sora and other rails;
   (d) Limicolae, or shorebirds, including avocets, curlew, dowitchers, godwits, knots, oyster catchers, phalaropes, plovers, sandpipers, snipe, stilts, surf birds, turnstones, willet, woodcock, and yellowlegs;
   (e) Columbidae or pigeons, including doves and wild pigeons.
2. Migratory Insectivorous Birds: Bobolinks, catbirds, chickadees, cuckoos, flickers, flycatchers, grosbeaks, hummingbirds, kinglets, martins, meadowlarks, nighthawks or bull bats, nuthatches, orioles, robins, shrikes, swallows, swifts, tanagers, titmice, thrushes, vireos, warblers, waxwings, whippoorwills, woodpeckers, and wrens, and all other perching birds which feed entirely or chiefly on insects.
3. Other Migratory Nongame Birds: Auks, auklets, bitterns, fulmars, gannets, grebes, guillemots, gulls, herons, jaegers, loons, murres, petrels, puffins, shearwaters, and terns.

Appendix D-1. Metes and bounds of Banks Island Bird Sanctuary No. 2.

Banks Island Bird Sanctuary No. 2 is situated at the north end of Banks Island, and is described in the Migratory Bird Sanctuary Regulations as being:

" In the Northwest Territories, in the District of Franklin and the waters of M'Clure Strait, the whole of Banks Island Bird Sanctuary No. 2 more particularly described as follows: *all that part of the valley of the Thomsen River lying northerly of the widening of said river at approximately latitude 73° 36'North and all that part of Castel Bay lying southerly of the northerly extremity of Mahogany Point, all according to map sheets 98 N.E., 88 N.W. and 88 N.E. dated 1956 and 88 S.W. and 88 S.E. dated 1957, of the National Topographic Series, scale 8 miles to 1 inch, and map sheet 98 S.W. and 98 S.E. dated 1957, of said Series, scale 1:500,000; said Sanctuary containing about 35,200 acres (14,245 hectares).*"